REPORT OF CONSTRUCTION OF A BATTERY OF TESTS BASED ON GUILFORD's SI MODEL

(January 1979 to June 1984)

PROJECT COMPLETED BY

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PREFACE TO THE REPORT

'Jnana Prabodhini (JP)' (which means awakener of knowledge), aims at an all-round development of physical, intellectual, emotional and spiritual qualities of students in general and intellectually gifted in particular. Search for talents and abilities ,and developing them for the service of the nation have been the major undertakings of Jnana Prabodhini. For this purpose JP has been working on 4 major fronts, viz., education, research, rural development and small scale industries. The details of these activities are given in Appendix III. Because of the diversity of our programmes and their direction towards understanding problems of India all our students, teachers, research scholars and entrepreneurs get an opportunity to study the problems of the nation. Naturally the scholars working in JPIP have the opportunity and also the facility offered by the Institute to identify the needs of the society and to conduct the research activity accordingly. This is the unique feature of JPIP.

Odyssey of the test construction project :-

While working on various fronts as noted above, JP's founder director, the Late Dr. V. V. Pendse realised the need for a wider and more comprehensive concept of intelligence as a foundation for education of the gifted children, and for a more comprehensive education within and outside the school. Writing items for measuring different abilities was one of his free time activities in the year 1967-68, while teaching psychometry to the postgraduate classes, Guilford's SI Model attracted his attention since then. Later, when he devoted fully to the establishment of this Institute, he was looking for an opportunity to undertake a scheme for construction of tools to tap various factors of intelligence. The project director, Dr. Mrs. Usha Khire, a student of Dr.V. V. Pendse, joined him in 1970 and both of them started thinking on SI model. Dr. Mrs. Khire had some source material from Dr. J. P. Guilford which he had sent her for her doctoral research in 1967.

It was then decided to launch a program for construction of 90 tests measuring 90 factors from figural, symbolic and semantic areas. It was also decided to standardize all tests on the same sample at the same time. It was quite a challenging and herculean task. Guilford's 2 books *'Nature of Intelligence (1967)'* and *'Analysis of Intelligence (1972)'*, and a number of reports from the Aptitude Research Project [ARP] studies, sent by Dr. Guilford formed the source

material. The personal contact with Dr. Guilford was also a great asset (Letters by Guilford given in Appendix II). There were many difficulties which were theoretical as well as practical. Understanding the SI model thoroughly, developing clarity about the definition of each factor and writing items for the defined ability with a content validity was the first requirement. Though *'Analysis of Intelligence (1972)'* gives sample items of SI model tests, many of them are not suitable to Indian children. (More details are given in the report). Forming an expert team of researchers, getting intelligent people to write the items, getting co-operation from the schools and above all having a continued financial support were also some of the related but tough problems.

The project was submitted to NCERT and it required a very long time to get some financial assistance in 1979. Though the funds given by NCERT were not sufficient, the support was very useful, because it was not merely financial. The Secretary, Mr. Dravid who accepted the proposal and the Director, Dr. S. K. Mitra who sanctioned the funds, also gave us moral support, and full encouragement which is rare. Psychologists like Dr. Edwin Harper (Allahabad), Dr. P. S. Hundal (Amritsar), Dr. R. G. Misra (NCERT, New Delhi), Dr.R. Srinivasan (Madurai) were associated with the project, as consultants.§ Previously it was proposed to standardize all tests on a sample from greater Pune since it will give a representative picture of Maharashtra and using these tests to find the norms for Maharashtra sample later on in the second phase of the project. However this plan was changed and it was decided to use the sample from various parts of Maharashtra right from the item-analysis study. This decision helped to write more culture-fair items though it added a disproportionately greater administrative load. The psychologists most of whom were women, went to villages and to different parts of the state quite remote from Pune city. Through such a field experience they could get a more real impression of the society. It was quite essential that the psychologist should administer the tests instead of hiring teachers' services , in test construction like the present one.

Most of the workers in the team were enjoying their work. The item writing workshops some times continued for the whole day. Writing the new items, trying on a small sample and revising, was a continuous process which many of them enjoyed. However writing and administering items for divergent and convergent thinking and transformation, was an unusual and difficult job.

§ : The consultants' committee met twice during the period of the main project.

Sometimes researchers returned from the field to the office like wounded warriors. However again the tests were revised, instructions were improved for proper response set and the matter was persued till the end.

Some new procedures had to be employed in the analysis of items from tests of memory and divergent thinking, which required some experimental analysis and discussions with experts.

The Institute did not have any computer facility. Very fortunately Regional Computer Centre was established by that time in the University of Poona which was available with concessional rates for research purpose. Our friends, teachers from statistics department, students from the computer course, and experts from private consultancy and statistics department came forward and extended their co-operation. It therefore became possible to manipulate and process the vast data on 90 tests till the completion of the job.

The construction of the tests started in January 1979 and a draft report was submitted in June 1984, which was approved and appreciated by NCERT. The funds supplied by NCERT were used up in the development of the project so far. By that time the Institute also was in a serious financial difficulty. However the members of the Institute did not leave the work half-way.

In the revised plan factor analysis was included in the first phase only. The experts and computer programs for factor analysis were not available locally. There was a stage when the whole work came at a stand-still. The Director of the Institute, Dr. V. V. Pendse had passed away. However the new Director Dr. V. S. Tamhankar who is also a Psychologist, could make the funds available though it was extremely difficult and encouraged to complete the work. The factor analysis and test-retest study were completed by the end of 1988. Thus, though the field work and major part of the analysis were completed within the stipulated time the whole scheme got spread over almost 10 years.

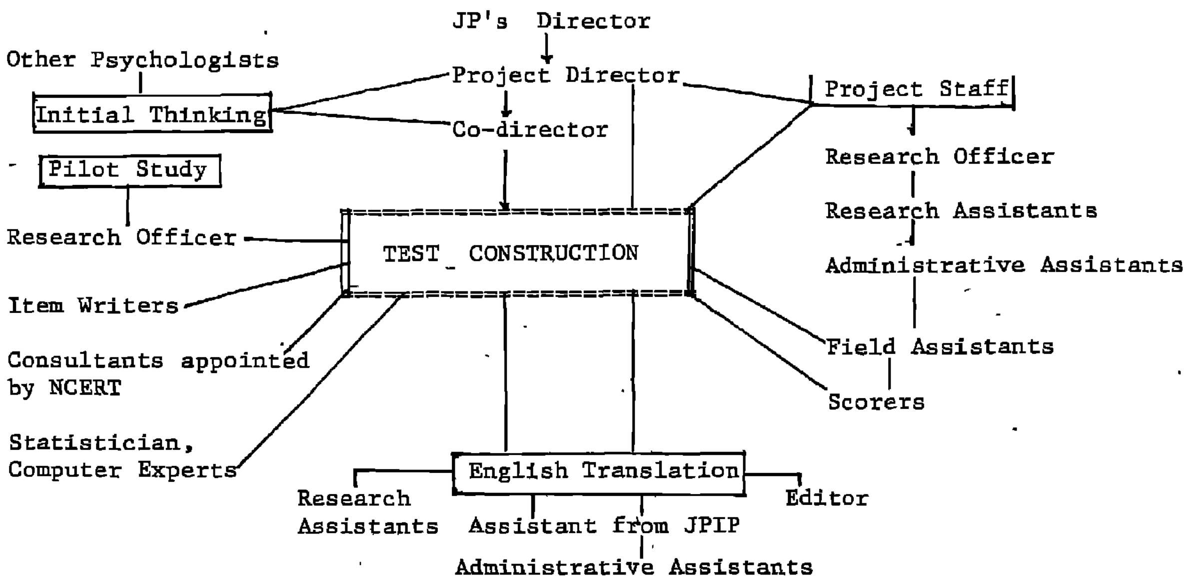
During this period the final versions of the manuals and scoring guides were ready for use by other researchers. It was essential to make SI tests available to Indian researchers. Dr. Guilford redirected to us the Indian enquiries about SI model tests. Hence instructions and sample items for all 90 tests got translated into English. Dr. G. S. Koshe, a well-known educationist edited all translations. The final report is a complete report of the work which covers many such things that were not included in the proposal submitted to NCERT.

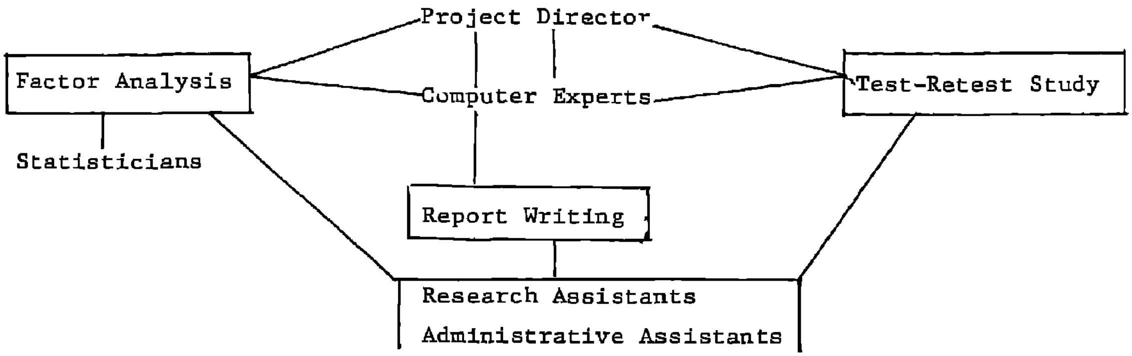
In 1985, Dr. Guilford asked the International Society for Intelligence Education working on SI model, to invite Dr. Mrs. Khire for the Seminar on Intelligence Education at Tokyo. Accepting the invitation, she presented the report of test construction and training programme for the gifted, based on SI model. The travel grant for this purpose was given by ICSSR. The personal dialogue with foreign experts working on SI model helped her to persue the scheme for the construction of tests from Behavioural content, which is in progress at present under the support by UGC.

This is the story of SI model test construction since its inception in 1967 in the University department until its presentation in the International Seminar at Tokyo, which marks the first important stage of the project. The project helped to develop deeper insights among the members of the Institute. They therefore could conceive of other related schemes in the area.

Organisational frame work :-

Though Dr. Mrs. Khire was the Project Director and acted as an expert and leader throughout the scheme the credit goes to the team involved from time to time at different stages of the project. The organisational frame-work in general was as follows :-





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Without the participation of these members the completion of the project was not possible. All members together demonstrated unique team-work.

The list of all participants who were involved in the project directly or indirectly is given in a separate section at the end of the preface.

Acknowledgements :-

The story of test construction cannot end without a special mention of the contribution by the main project staff. The Co-director Dr. Ashok Nirpharake participated in the main project from item writing to preparation of manuals. His inquisitive, critical and innovative mind lead the researchers towards conceptual clarity and exactness. The Research Officer Mr. Vijay Joshi, and Research Assistant Mrs. Vanita Patwardhan were the Chief Generals for every battle during the major project. Mrs. Hema Parasnis shouldered the equally important responsibilities though for a shorter time and accepted the challenges in initial computer analysis. Mr. Sakhalikar and Mr. Shimpi were two other members of the project staff who participated in all data collection, scoring and recording. Sincerity and honesty in investigations particularly in test administration could be observed because of the workers like them. Printing of 90 tests and their manuals was a difficult job which was handled efficiently by Mr. Joshi and Mr. Sakhalikar. Mrs. Usha Athavale, Mrs. Meghamala Rajguru, Mrs. Ashwini Bhat and Mrs. Bala Kulkarni the members from JPIP were with the project staff as and when necessary. Mrs. Athavale lead the team for data collection in the metropolitan area, and Mrs. Rajguru handled the preparation of scoring guides and manuals. She joined the project director for reading some pages from the present report and Dr. G. S. Koshe helped to edit the main textual part of the report.

Mr. Ranjeet Bhogal translated instructions for all 90 tests into English under the guidance of Dr. Nirpharake, and Dr. Koshe edited those with the help of Mrs. Aditi Atre. Mrs. Deepashri Bokil helped in printing examiners' copy.

Mrs. Sadhana Puntambekar and Mrs. Rajashri Nighojkar handled the test-retest study quite efficiently.

Mr. Dattatray Bane has been constant helping hand who joined the project as a part-time scorer and continued his participation by handling higher level responsibilities, throughout the progress of the project until the completion of the last page of the report. The contribution by Mrs. Patwardhan and Mr. Bane can be matched only by their efficiency.

The consultants associated with the project were stalwarts in the field. Their interest in the project was quite encouraging. Dr. Hundal suggested a procedure for analysing items of divergent thinking, which was modified for our purpose. Dr. Harper gave useful references for item analysis, Dr. R. G. Misra supplied us the computer programme for item analysis, through Dr. A. B. L. Shrivastava from NCERT, which served as a guiding line for our programmes. Dr. S. K. Mitra (Director, NCERT) and Dr. C.H.K. Mishra (Secretary, ERIC) always showed keen interest in the project.

We were really fortunate to get the computer experts like Mr. Uday Jog who handled item analysis, Mr. Anand Atre who processed data in normative study and Dr. A. P. Kulkarni who made factor analysis and test-retest study possible. Dr. A. P. Kulkarni is also a statistical adviser. Dr. Anil Kharshikar and Dr. Sharad Gore were two other statisticians involved in the project.

Dr. Vasant Vaidya, Mr. Ulhas Tumne, Mr. Sudhir Ukidave and Mr. Hemant Khire were our highly creative friends whose contribution in writing figural items must be mentioned here.

It would have been simply impossible to complete the work reported here without all these researchers, experts and well-wishers, without the co-operation by thousands of students, hundreds of teachers and many schools all over Maharashtra, *and without the encouragement and guidance by Dr. J. P. Guilford, Dr. V. V. Pendse and Dr. V. S. Tamhankar.*

§§§§§§§§§§§§§§§§

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[If a few names are ommited this does not mean that their contribution is of less worth. The ommissions are only due to our limitations].

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CONSTRUCTION OF THE BATTERY OF TESTS BASED ON GUILFORD'S SI MODEL

[MRS. USHA KHIRE]

The use of differential aptitude testing for selection, classification and counselling has been increasing. The adaptations of famous batteries as General Aptitude Test Battery (GATB) and Differential Aptitude Test (DAT) Battery are used frequently alongwith specific trade test of special aptitude test and general knowledge or intelligence test of Binet type. Inspite of this kind of assembling of the variety of tests, many individual abilities and traits remain outside the scope of measurement. Some of these neglected abilities might be relevant to the purpose of measurement.

Such limitations in the scope of mental testing result from its applied setting which shows more concern with predictive validity than with construct. In these settings, even in the guidance situation, where differential testing is required for diagnosing failures and maladjustment, the user is more interested in measurement than in understanding the nature of the attribute in terms of simple functions. The situational needs often decide the nature of tests which ultimately give inadequate and incomplete picture of human intelligence. The history of mental testing right from its origin with Binet shows this applied influence. Partly because of this applied influence there was no theory of human intelligence though the first experiment in the field was recorded almost a century back in Galton's anthropometric laboratory. His experiments and Piaget's developmental studies gave a lead in new directions but somehow it was ignored later.

When Galton and Spencer introduced the concept of intelligence and Binet further refined it more precisely they had not ignored the specific abilities and had never in their mind the monarchic nature of intelligence that results from use of single IQ matrics. This picture of human intelligence was redefined by Spearman in terms of G and S abilities, and was further radically changed by factor psychologists.

In 1960's the single IQ metrics were replaced by different ability tests. Among these tests the most widely used are PMA which measures 7 factors, GATB which measures 13 factors, and DAT which measures 8 factors. The performance on a battery of different tests is presented by a profile of different scores instead of single average of these scores.

The analyses of these and other tests culminated in the hands of Guilford, giving a complete model for the Structure-of-Intellect composed of 120 factors (Guilford 1958). Through continued Studies of Aptitudes of High-Level Personnel, in the Psychological Laboratory at the University of Southern California, Guilford elaborated the SI model giving theoretical explanations and empirical definitions for various factors (Guilford 1966, 1967, 1971, 1977). Guilford proposes three dimensions of mental ability; the process of thinking or the operation, the content or the kind of information and the product of thinking. He thinks that all mental activities can be classified into five processes or operations as cognition, memory, convergent and divergent thinking and evaluation. The content of the thought, i.e., the kind of information being processed is of 4 kinds - figural, symbolic, semantic and behavioural. The operation and content are basic dimensions of thinking. The product of thinking along these dimensions is of six kinds - unit, class, relation , system, transformation and implication. Thus 5 operations or processes into 4 contents or kinds of information, multiplied by 6 products make 120 factors. The figural information is the sensory information. It can be further divided according to the mode of sensation, e.g. visual, auditory, cutaneous, kinesthetic, etc. Since the first two kinds of information are widely used they are included in the SI model Thus the factors become 150 instead of 120. Definitions of 5 operations, 5 contents and 6 products are given in the Appendix I, alongwith explanations of trigram symbols denoting some of the 150 factors. Guilford describes this kind of exploration of intelligence as psychoepistemology (Guilford 1966).

The SI model is criticized (Horn and Knapp 1973, Undheim and Horn 1977) as;

(1) Being too rigid and not supported by theoretical and emipirical data to stand as a final model for structure of intellect or cognition.

(2) Cognition is viewed quite narrowly.

(3) The procedures employed for factor analyses (FA) were not proper.

(4) The verbal definitions of factors are not precise to allow to construct tasks representative of the factors.

(5) It is difficult to discriminate between some of the categories through actual test items.

(6) Some factors are of no theoretical interest.

(7) The model is not mathematical and does not show in what way one factor is related to other.

(8) The SI model has made over-all picture of intelligence more complex.

(9) There is still a need for the model to explain the factors emerged through factor analyses, according to cognitive processes.

(10) The extrapoloation of SI for application to school learning programme is rather a premature step.

It is true that a few problems crop up while describing intelligence through SI model and applying it for constructing tests and for devising training programmes. Researches started in Aptitude Research Project (ARP) by Guilford are not yet complete; he does not claim the SI to be a final model. Many more categories have been added since the initial formulation of the SI in 1958 (Guilford 1958, 1977). The factors hypothetically defined have been demonstrated later on. The behavioural content included in SI gives in fact a wider concept of intelligence.

Guilford's followers have proposed the fourth parameter of 'maturation/ development' in addition to the original 3 parameters : Content, operation and product. It has added to the relevance of the model for the study of human abilities. The operational definitions of SI categories make the nature of related tasks quite explicit. This explicitness should not be viewed as rigidity. Because of the clear verbal definitions followers could device proper tests and learning programmes (Khire 1970 Meeker 1985-b, Chiba 1978, Ashok Nirpharake 1981).

'Cognition' as conceived by experimental psychologists is a wider concept. This does not mean that 'cognition operation' in SI model should be defined in the same way. Since Guilford has clearly defined this term its limited scope does not allow any criticism.

In the studies of test development difficulty of writing items for a few hypothesized tasks has been noted by the pioneers and also by the followers. However, the present status of the research shows that it is possible, though difficult, to write the tasks representative of each factor. The cause of difficult lies in the fact that our thinking processes have not been developed in all directions as specified in the SI model.

Guilford has elaborately reacted to the criticism charged against SI model (Guilford 1985). The FA procedure employed in ARP were found to be inadequate later on. These procedures depended on the facilities available. They were changed and refined during the progress of the project. Though SI factors were demonstrated stage by stage and FA procedures employed for that were changing, all earlier results were well verified when proper computerized methods were available.

The results based on correlational analyses were supplemented by observations in day to day life, knowledge about the behaviour of army and air force personnel, insights in the nature of abilities required (e.g. creativity was added at the later stage) and psychological theories regarding thinking, problem solving, learning, perception etc. Mere statistical analyses do not yield any 'ability'. The factors are to be hypothesized on the basis of other considerations as mentioned above. Surprisingly, this very procedure has been criticized as the subjective element in setting the hypotheses of factor loadings. Critiques also showed that rerotations of original factor matrix in ARP studies, could give the set of loadings hypothesized differently by them. But this observation by critiques is rejoined by the followers of Guilford. They have pointed out the chance element in the analyses by critiques.

The need for explaining SI factors according to cognitive processes does not seem to be seriously attended by the pioneers and the followers. There is a possibility to unite the two approaches - the experimental and the psychometric (Carroll 1976 , Eysenck 1973). It will add to the value of the model.

Implications for psychological concepts :

From the very beginning the pioneers of ARP studies have given thought to implications of SI model for psychological theories regarding perception, cognition, learning, memory and other concepts related to thinking (Guilford 1967, 1985). Guilford has included perception in the description of intelligence. We find somewhat similar considerations by previous psychologists who included visual factor in their tests.

SI model has lot of implications for learning. In the laboratory experiment on learning, psychologists noted correlations between rate of learning and intelligence and, though very small, the correlations varied with the kind of tasks, implying that learning in different kinds of tasks depend on different abilities.

Attempt was made by Guilford and others to find how SI tests correlate with learning tasks. They analyzed the learning process into abilities. It seemed that different abilities are required for different tasks. Their importance changes according to the stages in practice, and involvement increases along the progress in learning.

The SI description of memory is quite different from the traditional one which involves retrieval depending on divergent and convergent thinking. SI memory includes recognition and some degree of retention. Both recognition and recall tests do the same job in differentiating individuals for memory ability. However, the factor analytic information suggests for a separate column for retention.

The SI model provides an elaborate explanation of problem solving process [Figure 2]. The ability of implication is involved in seeing a problem, cognition in structuring of a problem, convergent and divergent thinking in finding solutions and evaluation and memory at almost all stages.

Creative thinking is one of the greatest contributions of SI model. It was never explained so well and distinguished from other forms of thinking until SI model was evolved. On the basis of the concepts of fluency, flexibility and elaboration, factors of creativity were hypothesized in the initial analyses. In the final model, divergent thinking and transformation abilities seemed to be most relevant to creative thinking.

In the ability of decision making the SI evaluation factors have significant role. Quite a large number of SI abilities are found to be involved in the development of speech and language. Guilford has showed precisely how motor functions can be explained by SI factors and brings motor functioning into an information processing psychology.

The questions of cognitive styles is explained as 'intellectual executive function'. Witkin's field independence is a set or preparedness to see or produce transformation. The intellectual interests show some relation to preferences for certain kind of information, e.g., visual, symbolic, semantic or behavioural. Interests in divergent versus convergent are quite contrasting and suggest a rivalry between them and a bipolar trait.

It has not been possible to point out cortical localizations for all SI factors but some parts of the brain can be specified for processing the specific 'content' of information, e.g. parts are localized for visual and auditory

information, and the left hemisphere for both semantic and symbolic, and some subcortical elements for behavioural information. For operations and products Guiford suggests some other features of brain functioning , such as patterns of firing neurones.

The concept of growth and decline of intelligence can be elaborated using the SI components involved in the phenomenon. The evidence regarding effect of heredity on SI components is yet very limited. Certain studies (Stanford 1961) suggest inheritance of 'Cognition of visual transformation', and that is sex linked, and also of divergent production (Barron 1970). However, environmental influence is more. What kind of enviornment is necessary for promoting intelligen It is very well shown by SI model what functions are to be emphasized in any course e.g. creativity training programme by Sidney Parnes (1967), Ashok Nirpharake (1981) and 'SOI Programmes' by Meekers (1987), and Chiba (1980). Rate of growth of SI abilities is bound to vary. Some perceptual abilities are found to reach maturity earlier and divergent abilities quite later. Studies by Torrance (1975) and Khire (1971) have shown some in-between drops in the growth curves of divergent thinking.

The explanation of growth of intelligence, on the basis of SI factors is quite different from the conventional one. Descriptions by Piaget and others, of what infants can do, if studied in the light of SI model, suggest expression of many SI functions during earliest years. The Child's exposure to the world is restricted to SI functions. Later, through transfers, broader abilities are developed, but these transfers are never complete to achieve a universe ability. This view of growth of intelligence is just opposite to the earlier descriptions that in the beginning intelligence appears to be a single ability and is divided and subdivided through life experience.

There is not much information regarding decline of SI functions. However results of other studies suggest earlier decline of symbolic than of semantic abilities. There is decrease in recall ability and it is due to loss in convergent production. There is also noteworthy loss in transformation and evaluation. However what part is attributable to attitude change, cannot be specified.

Implications for testing, selection and guidance :

It is well established fact that conventional intelligence tests, including Stanford-Binet, revised WAIS, PMA batteries, all measure intelligence only partially

SI tests imply use of profiles rather than single IQ scores. The profiles are more useful for diagnostic purposes and for guidance (Meeker 1982). In selection procedures, if a composite score is essential a combination of test scores can be selected according to the purpose and these scores can be weighted by appropriate regression equation. Using SI tests in this way Guilford could decrease the failure rate in the training programmes for pilots. Of course such a composite score is not always essential.

Educational applications :

The more significant contributions of SI model is in the field of education. The curriculum for any subject, examination procedures, teaching and learning techniques all can be evaluated interms of SI model. Studies of typical classroom situations to investigate how far different SI functions are exercised showed that cognition and memory are overemphasized and productive abilities are neglected (Aschner 1963). There are experiments to correct this situation by SOI Institute, ISIE and JPIP.

In formal education there is more emphasis on verbal and semantic abilities however Guilford has suggested more use of visual abilities because it is more economic and it is useful in problem solving and creative thinking.

In the selection of students for a specified course, relevant SI tests were used by Guilford and his followers, and learning abilities required for a certain subject were pointed through their correlation with subject test. For example, it was found that visual abilities rather than semantic are more important for mathematics.

If the teachers are aware of SI factors they can teach a large variety of tacties required for different problems. When children learn SI concept they can use this knowledge for their learning.

The scope of analysing also the job situation in terms of SI functions is large. One can find out connections between a job and SI abilities even in the case of a scientist and a humourist.

To sum up, thogh researches on the SI model are not yet complete, this explanation of human intelligence gives a sounderfoundation for analysis, measurement and development of cognitive abilities. It enables an empirical verification of each hypothesized ability. When SI model is compared with some other fundamental descriptions of intelligence, such as those by biologists, experimental psychologists and developmental psychologists a few similarities can be easily noted. Some followers of Guilford have succeeded in integrating

Piagetion theory and SI model in their training programmes (Chiba 1980).

The experimental analysis of intellectual functioning in terms of SI factors has been attempted by some (Carroll 1976). Descriptions of intelligence as problem solving ability and information processing ability strongly support SI theory. It is not claimed that the battery based on SI model would not leave any ability unassessed. There might be some abilities unknown, e.g. management of intelligence, and some non-cognitive factors which are involved in intellectual functioning.

The unique contribution of Guilford's SI model is that it has clearly shown the serious limitations of present teaching and measuring techniques; critiques of SI model, too, accept this without any doubt (Undheim 1977). Since the proposition of SI theory, creativity, one of the neglected areas in education and selection, attracted attention of psychologists and educationists. Similarly, though the need for knowing and training of abilities involved in behavioural information processing seemed to be cognized at some places, a systematic comprehensive study is yet to be undertaken. SI model provides proper ground for such a study. With the use of SI model one can hope for finding majority of people above average on atleast a few of the SI factors. For thorough search for talents we will need tests of SI abilities. With proper combinations of SI factors and establishing interactions between them, we can hope for a unique resultant ability. With this conviction and attitude, JPIP has launched a programme for constructing tests for measuring SI abilities. The work for 90 tests measuring 90 factors from figural-visual, symbolic and semantic content has been completed the report of which is presented in this study.

Objectives :

[1] To see whether tests based on SI model yield profile differences among occupational groups - a pilot study.

[2] Constructing tests of cognitive abilities as defined by 90 factors from 3 content areas - Figural (visual), Symbolic and Semantic.

[3] Standardizing the battery and finding norms for 3 high school levels, viz., VIII, IX and X from Maharashtra.

[4] Reducing the vast array of tests of 90 abilities into a small number by grouping the tests suitably under conventional names of abilities.

Hypothesis :

[1] The tests prepared for the undemonstrated factors will demonstrate them.

These statements briefly indicate the objectives of the project. However, the academic interests and the needs of the research process generated many other explorations as the by-product. The report of the study follows the chronological stages of its development.

(I) PILOT STUDY :

Tests based on SI model are relatively factor pure and measure more simple functions. Such tests may not discriminate among adults and show any relation with their educati-n and occupation. If so, they will have limited use in guidance. The pilot study was designed to check the utility of tests of SI model type in this direction.

[1] Aim : To see whether scores on relatively factor pure tests based on SI model differentiate between occupational groups.

[2] Sample : Forty nine graduates (32 males and 17 females) of age range from 22 to 30 years were chosen from five occupational areas, viz., engineering, medicine, architecture, commerce and literature. They were engaged in teaching, professional practice, or a salaried job with minimum one year experience. The interviews with them and/or opinions of supervisors indicated that these graduates were satisfied with their profession, showing progress and aspiring for higher success.

[3] Tools : The ad-hoc battery of 39 tests was prepared including standardized and non-standardized versions to measure 37 factors from SI model as follows :-

(T A B L E : I)

[4] Findings : Means and SDs for scores on 39 tests were found for each occupational group. Group means on each tests were compared by pairs. Five groups make 10 comparisons $\frac{N\ (N-1)}{2}$ possible on each test and thus 390 comparisons on 39 tests. The difference between group means was tested for significance for each pair after making appropriate correction for the small group.

Significant difference at .01 or .05 level was noted in 67 out of 390 comparisons. Tests distinguishing between the groups significantly at least for 4 or more times out of 10 comparisons were selected for plotting the profiles of occupational groups. Since the sample was not large enough and all tests in the battery were not standardized it was not felt necessary to test the difference between profiles.

(T A B L E : I-A)

Though limitations of the sample and the tests used put constraints on generalizations regarding discriminating or non-discriminating characteristics of the tests, the results obtained certainly indicate some guidelines for further research. It was observed that :-

[a] Profiles of 5 occupational groups differ noticeably with respect to level, shape and dispersion.

[b] A study of 390 comparisons of Mean scores on 39 tests shows that certain operations, products and contents are stronger discriminators and some are weaker. For example, the stronger ones are convergent thinking from operation dimension, relation and implication from product dimension and figural content from content dimension. These categories are the components of logical reasoning (concrete), as Guilford describes. The weaker ones are divergent thinking, system product and symbolic content.

The ad-hoc battery did not have equal representations of all categories from SI model, otherwise some more observations would have been possible. On account of the limited scope of the pilot study it was not attempted.

[c] The study was also useful in giving orientation to writing different item types suggested by SI model.

[5] Conclusion : SI model tests can be used for adults and some factor tests indicate their potential as effective discriminators.

(II) Test Construction :

Since the results of pilot study were encouraging it was proposed to construct 90 tests for measuring 90 factors from figural (visual), symbolic and semantic areas from SI model. It was a unique venture which required sustained and co-ordinated efforts of a large team of research workers over a considerably long time. The construction of each test progressed with different rate through logical stages which are described below. Consequently, while some tests reached almost the final stage some were lagging behind on account of repeated revisions. The 'serious problem' tests are described specifically wherever necessary. The construction of other tests is reported here stagewise instead of testwise.

Test Writing or Item writing -

(a) Choosing the item type : Guilford has suggested more than one item type for many factors. Certain types can clearly demonstrate the hypothesized factor. However he could not find any appropriate tasks to demonstrate 4 factors, viz., NFU, NSU, NFS, DFR (Guilford 1967, 1971).

All item types were studied thoroughly with respect to factorial loadings recorded in Guilford's studies (Guilford 1967, 1971), similarity of form across the content dimension, suitability for printing, use of Devanagari script and Marathi language wherever essential, and facility and objectivity in scoring, etc.

Facility and objectivity in scoring was one of the important consideration Even the relatively open-end items could be framed as fixed-response type and assessed by computer. For truly open-end items such as those of divergent thinking, an attempt was made to avoid complex scoring system for which high technical skill would be required. Taking into consideration these facts proper types were selected from Guilford's studies and were changed, modified, or substituted by new ones wherever essential.

The modifications depended on theoretical as well as practical considerations. For example, one consideration was uniformity of the task across the contents for the same product, or across the products for the same operation. All memory tests are made recognition tests. Thus the mode of response is the same for all memory tests.

Similarly though it was possible to construct multiple-choice items for certain production tests, it was not followed for the uniformity across the products and all items were made open-end. While writing the items the item writer had to take into consideration the knowledge required by the students to solve the test.

(b) Writing the item : There were some other conditions to be considered while writing the items. The item-writer has to assume certain things that the students have knowledge necessary to solve the test, familiarity with the content, vocabulary and language in general, and necessary skills to take sophisticated paper pencil tests. It should not ask for any knowledge more than the basic principles learned upto standard VII. The content of the items should be drawn from persistent life situations of the students. Differences due to age, environment, culture and dialects of language could not be overlooked, though it was rather difficult to make verbal tests culture-proof. The task should be interesting, challenging and simple to understand. To check these assumptions, initial tryouts were conducted on students from Std. VII.

The project research staff, other psychologists, school teachers, architects, engineers and some lay-persons were involved in item writing for which workshops were arranged. They ranged from short 2 hour discrete sessions to 6 hour continuous sessions for 5 days.

Before writing items for each type, the definition of the factor was elaborated alongwith its illustrations in life. The definition and sample item were discussed and compared with parallel example across the content and operation dimensions. The basic material for writing items, e.g. types of figures, numbers, words, objects, fields of experience, etc. was listed. Text-books and reading books were also referred.

As a usual procedure each item-writer attempted 1 or 2 items on the lines of sample item. These were discussed and commented by all participants. On the basis of the guidelines provided by this discussion they proceded to write 2 or 3 more items. The final set of items was prepared after their evaluation by the team of selected experts. This set was tried on a small unselected sample for writing instructions.

This procedure was more or less the same for all tests.

Initial tryouts -

The main purposesof initial tryouts were to check whether the items satisfy the conditions noted above,

Suitability and appropriateness of instructions, and

to have some judgement of time.

Sample -

The sample ranged from unselected students from grade VI to adults in groups of 5 to 30. Since the sampling was spontaneously random it is not recorded here. Individuals were chosen from the staff, neighbourhood of researchers' residence,centrally located schools, and coaching classes.

Item writing, tryouts and revisions were conducted simultaneously. It is beyond the scope of the present report to narrate item writing procedure for each test. However some special features can be noted as follows :-

[1] Before using the raw material for assessing Memory and Divergent Thinking its cognitive difficulty was ascertained.

[2] Before using each item for higher level products, it was checked at the basic level of Units.

[3] More than 100 geometrical figures were shown to young children from grades VI and VII for recall test. These figures formed the pool for writing items for Memory tests.

[4] In case of certain tests items were written in two or more types. Initial tryouts helped to finalize one of them. It was more so for tests of Divergent Thinking.

(III) PRE-ITEM ANALYSIS :

Since most of the SI model test-types are new and do not have enough previous data to ascertain their suitability, pre-item analysis study was conducted on a larger sample, which was drawn from standards VII through XI of representative schools from East, West and Central parts of the city, and also from some centrally located coaching classes. Table II shows the composition of the group. The N varies for each test, between 25 to 30 Ss from each grades. For certain tests pre-testing sessions were more than one.

As these students were only from Pune, one pre-testing session was conducted for students from outside Pune. They were 29, came from 6 different places and ranged from grades VI through X. A mini-set of tests including samples from all the three dimensions, i.e. content, operation and products, and samples from different item types, was administered. The feed-back suggested a few changes in instructions.

Data from pre-item analysis study were analysed to ascertain difficulty level and skewness. It was found that the tests of convergent and divergent production and those of transformation and implication were relatively more difficult. Table II-A shows sample results. The analysis necessitated revisions, modifications and total substitutions at some places. All tests, even those with satisfactory statistical data were critically read and studied by the research staff not directly connected with the project. Revisions were made in every aspect of the test as necessary, e.g. printing layout, instructions, order of items, order of right choices, response types, combination of tests for administration, etc. Major revisions were in Divergent Production tests.

Devising New Item Forms :-

It would be appropriate to present some information about the new item forms that were devised for a few tests for which the factors were not demonstrated in Guilford's studies or the forms suggested by Guilford were found unsuitable for Indian conditions.

While writing new item forms, definitions of SI categories denoting the abilities, and the tasks used for their counterparts in other content areas and operations were referred. For example, in DST, subject is asked to write different words by changing one letter at a time in a given or arrived-at word. A parallel example was written for DFT, in which the subject is required to produce different objects by changing only one element of a given or arrived-at drawing. The DFU test, viz., Make-a-figure suggested the tasks for NFU and NSU. In a Make-a-figure, S has been asked to produce as many figures as he can, by using three given lines. Except the nature of the three given lines there is no other constraint. The details of item writing for NFU, NSU, DFT and some other factors are described here.

NFU : In this test S has been asked to produce a letter in Devanagari script by using the given lines. Only one or two letters are possible in each question. It seems that the nature of the task is suitable for NFU and will have the least loading of NFS, though S has to 'produce a letter by putting together its elements', which seems apparently to be a task for System rather than Unit product. A separation between Unit and System products is very often difficult or doubtful on a priori basis. Age and experience as well as test instructions deternmine whether the S's thinking is at the Unit level or at the System level. The validity of the content of the NFU task was ascertained by judges and apart from item analysis a few tryouts were taken before finalizing the details for the printing of given information, i.e., thickness, direction, size, shape, etc., of the given lines.

NSU : In NSU task S is required to produce a number according to given conditions by using given digits. Only the usual tryouts were enough for finalizing the present nature of the task.

NFS : The letter series and number series for CSS suggested the task for NFS. For NFS, S is asked 'to put the given figures in order, or in sequence'. Only the usual tryouts were enough for this test too.

DFR : Writing items for DFR was challenging. Four types of items were attempted. The initial DFR task was 'producing figural analogies', which was similar to NFR. First of all, possible figural properties were spelled out, e.g., size, shape, open Vs colsed, balance, regularity, geometric Vs freehand, number of sides, organisation of different figures, etc. There were 17 such distinct properties. A few properties were chosen and a few pairs of figures, each demonstrating one property, were given. Ss were asked to draw as many pairs as they could. They had to find out more pair figures showing the same relation. Inspite of number of tryouts and revisions the test could not come up to the statistical requirements.

Another form was somewhat parallel to DMR task. Given a pair of objects S was asked to compare them to find out different relations or common properties, e.g., a train and a snake or an umbrella and a flower.

In the third task Ss were asked to find out the visual properties of the given object and also to find out other objects having these properties. A sample problem is given below.

Given object	Property	Other objects
a mirror	- rectangular	- book
	- reflection	- water

All these item types were found either difficult or ambiguous. Hence any of these attempts were not successful.

The fourth task that could stand to minimum expectation, was similar to the initial one, viz., 'producing figural analogies'. The only difference is that object forms have been used instead of geometric figures. Given a pair of objects S was asked to produce other pairs showing the same relationship as in the given pair. For any object its usual size and position were to be considered.

Four different pairs were given, and one of them (the last one in the following list) was finally retained. These pairs and their possible answers are as follows :-

	Given pairs		Possible Answers
[1]	hand bag and cap (as if water reflection)	-	valley and hill
[2]	book and leaves (Part - whole)	-	garland and flower
[3]	lock and key (one fitting into another)	-	Nut and bolt
[4]	drinking glass and bucket (same shape, different size)	-	slate and blackboard

Usual statistics as reported previously viz., difficulty level of items and skewness of test scores were used for selecting the items. For the tests of divergent thinking, the mean score and d-score (number of different responses) were used.

For eight other factors new item forms were used though these factors were previously demonstrated in Guilford's studies. The original forms (Guilford 1971) were found unsuitable. These factors and their new item forms are as follows :-

DFU : The 'Make-a-Figure' test (Guilford 1971) for DFU was used by the Project Director in her doctoral research and also in initial stages of the present project. Because of the recurring difficulty in establishing objectivity

in scoring of 'Make-a-Figure' test Torrance's Circle Test (Torrance 1974) was chosen. The original instructions were changed so as to direct the response-set for fluency score. The scoring procedures for Torrance and Guilford tests clearly show that though the terms as fluency, flexibility, originality are used by both, they do not have the same import of meaning.

Similarly, for Divergent Production in two other content areas, a single task was used for two products, Units and Classes. However, it appears that the instructions required for the maximum facilitation of any one of these two productions, logically control the expression of the other. Hence separate tasks were written for divergent products of Units and Classes.

DFT : The 'Match Problems' (Guilford 1971) for DFT shows very high loading of the factor, however it was thought unsuitable for our sample. A figural task parallel to DST was suggested. Given an object figure separated into parts, S is asked to remove any one part at a time to make a new object by adding details if required.

DFI : The 'Decoration' test (Guilford 1971) for DFI has a similar difficulty. Hence new item form similar to Torrance's 'Elaboration' task in Circle Test was devised.

Initially it was also attempted to have DFU, DFC, DFT and DFI scores on a single circle test as given by Torrance. But it was not theoretically sound. The degree of factor loading would depend on the degree of necessary response-set. The proper response-sets for four factors mentioned above could not be elicited in a single task. Further to avoid the controversial issue of 'task specific and factor specific variance of divergent thinking tests', the method of obtaining scores for different factors from the same task was not used.

DSS : The 'Make-a- Code' test (Guilford 1971) was adapted to Marathi language for measuring DSS. Initially it was thought suitable and results of preliminary tryouts were encouraging. However, at the stage of item analysis study it could not come up to the expectations. At some places the principles of code-making could not be grasped by the children. Further the nature of Devanagari script put some limitations. Hence a new item type was written. In a 3 X 3 matrix two numbers were given, the first and the last, and Ss were asked to complete the matrix according to the given rule, in as many ways as possible.

ESU : A few exercises similar to 'Symbol Identities' (Guilford 1971) suggested for ESU, were used in faster reading programmes in this Institute. The nature of the task in Symbol Identities was found to be quite suitable for ESU. The same task was also used in intelligence scale standardized by this Institute. In this task S has to check vowels and sounds of nonsense syllables in each question and to see whether it can be produced from the given meaningful word. This task yielded quite satisfactory results

EFS : A task similar to NFS was devised for EFS. S is asked to judge whether the given five figures are in order or not.

EMS : A completely verbal task similar to 'Unlikely Things' (Guilford 1971) was thought out. A few events describing a situation were given. Ss are asked to judge whether the description contains any unlikely or contradictory events.

NMU : Two tasks were devised for NMU; one similar to 'Word Group Naming' (Guilford 1971) and other similar to 'Verbal Relation Completion' (Guilford 1971). The face validity of the latter was debatable. The task was thought to be more suitable for NMR, by some experts. Hence both the tasks were retained.

Thus these are the 12 factors for which new item forms have been used. For the 42 more factors the original item forms as given in Analysis of Intelligence (Guilford 1971) were used with some modifications while for 38 remaining factors they were used without change.

The following table summarizes the extent of dependence of the present battery tests on the item forms given by Guilford.

Degree of change in item forms	No. of factors
Altogether new	12
Partial but distinctly noticeable modifications	41
Very little, less distinct, or no modifications	38

For NMU two types of items were used. Hence the total is 91.

(IV) ITEM ANALYSIS STUDY :

[a] Sample -

A representative sample of 4322 students from the grades VIII through X from Urban and Rural areas, was chosen from six districts of Maharashtra and six zones of Greater Bombay (Table III). The sampling plan was based on records from Vocational Guidance Bureau and Directorate cf Education. On the basis of these references whole Maharashtra (without Bombay) was divided into six zones. One district place was chosen from each zone for its best representation and some practical facilities. The opinions of the experienced teachers, size of the population, availability of the school having classes upto the X standard were the criteria for choosing the rural area, near the district place.

Similarly the Greater Bombay was divided into six zones and one school was chosen from each zone.

All the students from the class B or a similar division in which segregation according to ability would be less, were invited for the test.

Since it was not possible and necessary to administer all 90 tests to each student the main principle of the sampling design was distributing 90 tests over the sample in such a way that all zones, and all educational levels, i.e. grades, would get equal share from 3 dimensions of SI model. A special adaptation of Latin Square Design was employed to achieve this plan (Table III-A).

[b] Test administration -

Test Bookets - Every test booklet used in the item analysis study contained generally all six product tests from the same operation and content. For example, the booklet, 'CF' would include six products from Figural Cognition. Similarly there are 14 more booklets.

The memory tests where the working time for the whole booklet would exceed the normal limit, were divided into 2 parts to facilitate the administration. In Memory booklets, study and test pages were in different colours so that the proctors would easily know whether the student was working according to the instructions.

The general instructions were printed on cover page. All specific instruction along with sample problem for each test were printed on one page followed by test page, except for figural tests. Instructions for figural tests were printed separately.

Test administration - Trained staff members including those who were involved in item writing administered the tests. Instructions were read aloud and explained, at the same time students read them silently. Students were seated one on each bench to facilitate the supervision and control. The maximum testing time for one booklet was never more than 60 minutes though total working time was upto 100 minutes for some tests.

Very often the morning time was preferred to start the work, however at some places the students were available late in the afternoon and girl students left the class leaving some tests incomplete. Variables like these were carefully noted.

[c] Data processing -

Item types and scoring - SI model tests make use of a variety of item types and thus have rather unusual implications for scoring. What they have in common is only that being tests of ability, the response which is either correct or adequate (as in case of the tests of divergent thinking) gets the score.

For making a plan of data processing, the item types were divided on the basis of the kind of response, the kind of assessment and the kind of score. SI tests cover almost all possible types of items. It created unusual difficulties in computerization.

Basically there are two kinds of response types, fixed response or forced choice, and free responses or open-ended; and there are two corresponding kinds of their assessment. Under forced choice type are included the items having alternative choice, multiple choice and those with varying number of choices. Their assessment is, naturally, objective.

For the free response items the criteria for assessment may differ; they are objective or relatively subjective requiring judgement. Under the first category, if the response is the unique one as previously determined by the examiner, it is correct. In another type if the response falls within the broader criteria of adequacy it is scored as the correct one.

Some tests are on the border of fixed and free response. The answer is to be produced from the relatively large number of given choices. So there is more liberty than the conventional forced type. Their assessment is objective.

The third dimension is the kind of score. It is either dichotomous or multipoint. The multipoint score is either limited, or relatively unlimited.

For the item analysis study, initially all answer books were scored manually. The research workers and other experienced asssistants scored a few tests of all types and prepared detailed instructions. The open ended tests were scored by the specially trained members of the staff. Nearly 50 p.c. of the tests were in this category. In such cases scoring guides based on judges' agreement were prepared and again revised through a few tryouts. In some cases, preparing detailed scoring guides was the task in itself.

Every guide included the set of self-explanatory guiding principles and the list of assessed responses showing both right and wrong ones, followed by discussion wherever necessary.

[d] Computerization –

ICL 1904 S system available in Regional Computer Centre was used for computerization of data and further statistical analysis wherever possible.

The plan of data analysis was explainedto the computer expert. The team including the Project Director, Co-director, Computer Experts and the Research Assistant finalized all detailed steps in the system analysis and the card design.

While writing the programme for present analysis, the item analysis programme developed by the NCERT was useful (Letter by Dr. A.B.L. Srivastava, dated 7.1.1982). Codification of data was done as necessary.

[e] Item Analysis : The plan of data analysis –

All zero scores and discard responses were omitted from the analysis. Instead of using only upper and lower end groups whole sample on a test was used.

Test Statistics :

(1) Using zone X grade and zone X grade X sex classification, group differences in the average performance on each test were studied and significance was tested through ANOVA and t-test wherever possible.

Item Statistics :

(1) Item statistics too were calculated separately for each group using zone X grade classification.

(2) For index of item difficulty mean item score was used. The same is P where the score is 0 or 1.

(3) In each group for each item percent pass, ommission and failure were calculated. Items with more than 10 p.c. omission were rejected from further analysis.

(4) In the forced choice item, value of P was corrected for chance success.

(5) Following indices were used for item validity.
 (i) Mean of the P (pass)group.
 (ii) G index of agreement for item-item correlation. For testing significance, G was converted into Z.
 (iii) Point-biserial r for item test correlation. For testing significance it was considered as product-moment r.
 (iv) In tests of divergent thinking a 'd' score, i.e., the number of different responses was considered as a measure of stimulus potential of the item, in addition to the Mean score.

(6) For correlational analysis multipoint item scores were converted into dichotomous by median split.

(7) In tree type tests, parts were considered as separate tests.

SI model tests pose unique problems in item analysis. These problems and a few other considerations in the data analysis are stated here. Some of these have been discussed with Dr. Guilford (Ref. : Appendix II).

[1] Use of 'd' score :-

In tests of divergent thinking, usually, the number of item is small. The usual indices of item total correlations are not useful. Item-item correlations yield some useful information. Moreover, for facility index of the item, the mean score on each item might be used. The additional information may be got by 'd' socre, i.e. number of different responses on each item in the total sample. The rationale is that if the item has the potential to stimulate experience in different fields, its validity as a measure of divergent thinking is higher. Thus as a measure of item validity in tests of divergent thinking, use of 'd' score alongwith item Mean score seems to be useful. A good item is that with higher mean score and also higher 'd' (Table V).

[2] Item difficulty in test of memory :-

Another unique problem crops up in tests of memory. Usually, to avoid the effect of serial position on item difficulty, the test writer sees that almost all individuals can reach to the last item or he adds a few more items at the tail end just to keep the brighter individuals busy. The pass percentages on each item gives a true index of item facility.

However, in tests of memory, the position of the item in the whole set given for study has a significant role which interferes with other factors of item facility. There seem to be only two alternatives : rotating the position of items so that every item will have every position, or making all items equally difficult as in the speed test so that the position of the items remains the sole reason of item difficulty. The former is not generally practicable and the latter not always rational. The best possible way seems to be that the P value might be taken into consideration while selecting the items, but should not be used to rank order them.

[3] Use of whole group instead of upper and lower end groups :-

Very often the upper and lower groups of the total sample are used. Some reasons are practical which lose the importance when computational aids are available. The assumptions for using the tail groups are disputable. Further, this procedure does not use all information. The information with respect to the middle, inferred on the basis of the averaging the two extremes is not always dependable. Items selected through this procedure may not yield expected score distribution when the final test is administered to the whole sample. The proposed battery will have to be used more often for the average majority, the information about which cannot be ignored while selecting the items.

[4] Dichotomizing the multipoint score :-

For any type of open ended item, where the score is not dichotomous, median split on the item might be used for item-total or item-item correlations. This way of dichotomizing is quite consistent with the general assumption in tests of achievement or aptitude that the underlying criterion is continuous though the item score is dichotomous.

[5] Point-biserial r for item-test correlation :-

For selection or rejection of items, one coefficient of correlation is as good as others. The rank order of items remains the same for all correlations as they are interrelated by some ratios. However, the information required and the availability of an appropriate significance test, are some considerations. For item-test correlations, point-biserial r is appropriate. It can be treated as product moment correlation and further tests of significance might be applied.

[6] G index of agreement :-

For item-item correlation, Guilford's G index of agreement is appropriate rather than phi or tetrachoric r because it gives due justice to the differences between like-signed and unlike-signed frequencies. Greater number of like-signed frequencies imply positive correlations. The phi coefficient comparesthe products of like-signed frequencies to the unlike-signed frequencies. If the frequency in any of the cells is zero, one of the two products is zero and the information is lost, and the phi coefficient is increased or decreased disproportionately.

[7] Factor analysis of items :-

Dr. Guilford suggested to factorize the items for item selection (Ref. : Letter dated 26.1.1988 : Appendix II).

It is an ideal approach for more refinement, but controversial. It was not attempted for three reasons.

Firstly, the G-index information is quite useful. Items showing significant positive correlation or agreement can be selected. The average correlation and the pattern of correlations manifest the homogeneity of the content in the test. Further, factor analysis will have an additional advantage only when the number of items is large, while for many tests in the present study the number of items is rather small, i.e. 2 to 6.

Secondly, the intermediate information on Agreements and Disagreements is useful to modify the items. It gave us a clearer feedback on faults in item-writing. It is true that the visual inspection or reading of inter-item correlations to locate the clusters for selecting proper items, has some limitations but it revealed more information. Moreover, even with factor analysis the picture is not clear when items are dichotomous, and considerable time is required to read the results.

Thirdly, factor analysis of items is quite laborious and expensive.

Hence, maintaining the homogeneity of the test by writing items on the basis of the definition of the ability under measurement and supporting it by correlational analysis of items is theoretically acceptable and also a practical solution.

[f] Results -

Test Statistics :

The sampling design shows that each of 90 tests was administered to boys and girls from three grades, viz., VIII, IX and X in rural, urban and metropolitan area, however all three grades from all three areas were not used. The Latin Square Design for grades X areas gives 6 groups for each test. M's and SD's were obtained separately for each group. Only representative results for tests 415 and 326 have been produced (Tables IV, V, VI) since it is not possible to produce all tables for 90 tests.

Group difference in mean score have been always significant. Sex differences were not consistently in favour of either sex. When tested for significance wherever possible, they were rarely found significant.

A few other interesting observations were noted.

(1) The mean score mostly increases with grade, it is generally higher in urban and metropolitan area.

(2) Certain tests of memory show more facility for rural groups, while it seems that tests of symbolic content and from convergent production present some difficulty for them.

(3) Most of the transformation and implication tests were relatively difficult for all grades at all places.

Item Statistics :

Item statistics included mean item score i.e. 'P' for dichotomous score, r-point biserial for item-test correlation, Mp i.e. mean of the P-group, medians for multipoint score, and G-index of agreement for item-item correlation. The sample result sheets from computer for test 415 are given in Tables IV and V.

Item analysis for every test was worked out separately in each of the six groups. Items were selected after studying the statistics independently for each group. (The tables IV, V, V-A, V-B and VI show how the statistics were studied). A table giving items selected in each group was prepared. Items maximally satisfying the criteria were finalized.

The criteria of item selection were as follows :-

(1) Items showing significant positive correlation with each other in maximum number of groups.

(2) Significant correlation with the test. When point biserial is not significant, mean of the pass group should show expected difference.

(3) Greater difference in mean item score along the grades.

(4) Higher mean score and also higher 'd' score in case of the tests of divergent thinking (Table VI).

(5) Satisfactory distribution of responses over choices.

(6) Maximum satisfactory distribution of 'P' in the whole test.

One of the working sheet showing procedure of item selection is given in (Table V-A).

Further, items too similar in content and those having emotionally toned words were either rejected or modified, according to the number required; and for getting good items, modifications were done using statistical information, e.g. increasing or decreasing the level of difficulty.

Item revisions and modifications :

Some of the tests required revision of a few items. In case of some other tests increasing or decreasing the number of choices for all items was essential. A few tests had to be totally rewritten [CSR, DFR, DFI]. These tests were subjected again to item analysis study.

The content validity was doubted for tests of NMU and NMR by some experts though statistical results were satisfactory. These tests were rewritten and subjected to analysis. For NMU, both the original form and the revised form were retained.

A few changes were done in DFT and DFI. They were finalized through necessary tryouts.

In all, there were 7 such tests in which major changes were done.

Revising Instructions :

Statistical results, experience of field investigators and the continuous study of the test content pointed out the need for some revisions in instructions at some places. Hence all instructions were reread the rewritten by expert psychologists, so that the general format for instructions would be same, they would be facilitating the required response set, and they would be quite sufficient in any standardized situation. The test administrator would not require to explain beyond the printed instructions.

It was also seen that the sample items would be relevant to the majority of the items selected in final versions.

Preparing final versions :

Ninety tests are printed in 15 booklets in such a way that each booklet will contain 6 product tests from a single content and operation, i.e. 6 tests measuring 6 products of figural cognition were included in one booklet. The cover page giving general instructions is the same for all sets except the colour specifying the content of the set. All sets are in demi size and the matter in 14 point. Different procedures such as composing, photo setting and xerox offset were used as necessary. Printing of 90 tests spaced over 225 pages was a task in itself. It was quite laborious and also difficult.

After item selection, each test had to go through many stages such as revision and ranking of items wherever necessary, randomisation of right choices, checking of final press copy by the experts, etc.

Setting the time limits :

These final versions generally have a test time from 3 minutes to 6 minutes. The policy is somewhat different for Memory and Divergent Production tests, e.g. for Divergent Production, time pressure should be relatively less. Hence the number of stimulus items is minimum i.e. ranging from 1 to 4 and time is generally 10 minutes.

For deciding the time limits, a sample of 2250 boys and girls was drawn from grades VII, VIII and IX from 14 schools in Pune. For the Normative study, the sample was drawn from the grades VIII through X. However, while setting the time limits, it was nearly the end of the academic year. So the sample was drawn from one grade lower than the proposed level. The schools were so chosen that 50 p.c. of N would resemble the rural sample and 50 p.c. the urban. Thus

3 grades X 2 areas made 6 groups.

In each group, N was 25; total N for each test was 150. In each group, whatever time was required by the students, was allowed and the time required to complete the test by 50 p.c., 75 p.c. and by all, was recorded.

The data on time limit tryout, were used to know more about the items in the final version. The pass percent for each test was studied while finally deciding the time limit.

(V) THE NORMATIVE STUDY :

The Sample -

The sampling plan was mostly as previous, i.e. as used in item analysis study. A little modification was done so that all 90 factor tests will get administered to each grade in each zone i.e. urban, rural and metropolitan.

Three zones and 3 grades give 9 groups. However in item analysis study for each test sample was drawn from 6 groups, two grades from each of 3 zones, in such a way that finally each zone and each grade would get equal share from 3 dimensions of the SI model. It was not sufficient for normative study since data from each grade and each zone would be necessary for establishing norms. This plan was achieved by selecting one additional district (Table VII-A).

A sample of about 7,000 students from grades VIII through X was drawn from urban and rural parts of 7 districts of Maharashtra and 7 parts of Greater Bombay, and each student was given 12 tests in such a way that for each test there would be approximately 300 students from each grade and/or in each zone. Table VII shows the distribution of sample.

Test Administration -

The composition of final test booklet and general procedure of test administration were ~~same~~ mostly as those in the item analysis study. Test administration was spaced over the middle 5 months of only one academic year, i.e. from the beginning of August to the end of December. The day of testing at the selected places depended on climatic conditions of the concerned place, examination programme, and vacations.

Data Processing -

The scheme for data processing was some what similar to that employed in the item analysis study. The 38 open-end tests had to be scored by trained scorers and psychologists. Data on the remaining 53 tests were computerized for assessment, on ICL 1904 S system. Most of the statistical analysis was done using the same system though PC compatible also was used for limited purposes at later stages. Out of the 38 open-end tests, 18 tests of divergent thinking had items with relatively unlimited score. Similarly 6 other tests, namely, CSI, CMT, CMI, NFC, ESC and NMC had items with multipoint score. The item scores in these tests were not converted into dichotomous scores. For the remaining 14 tests though the items were open-end, the scores were either dichotomous or were converted to be so.

Data Analysis -

The following statistics were calculated for each test, and appropriate tests of significance were applied wherever essential.

[1] M and SD of age for each grade.

[2] M and SD of test scores for each test using -
(a) grade X zone classification
(b) only gradewise classification.

[3] Gradewise mean item scores or Item P and item-total correlation for each test without any zone classification.

[4] Estimates of internal consistency using Kuder-Richardson or Spearman Brown formula, or by average item-total correlation.

[5] Test-Retest correlations.

[6] Norms in 'C' scale and standard score using -
(a) grade X zone classification
(b) only gradewise classification.

Results -

It is not possible and essential to produce in this report, the results of all analyses mentioned above.

The gradewise means for all tests are given here though the detailed norms are not produced. Only the representative results for grade X zone classification are reproduced though zone differences are separately summarized and also commented upon. The item Ps and item total correlations are also summarized for sake of convenience. The details will be made available to researchers on request.

The essential results are produced here as shown below :-

[1] Gradewise and zonewise mean age : Table VIII

[2] Item Means and item-total correlations;
Representative results : Table IX
Summary : TablesX-a to X-d

[3] Reliability Estimates ;
Coefficients of internal consistency : Table XI
Test-Retest correlations : Table XII

[4] Test Means and standard deviations;
Representative results from grade X zone classification : Table XIII
Gradewise test means and standard deviations : Table XIV.

Discussion -

The main objective of the present project was limited to construction of 90 tests and their classification into small groups for practical purposes. Hence the observations relevant to the objectives are summarized and discussed here though the study also generated many other explorations, and though a deeper study was felt necessary at certain stages in data analysis.

Internal Consistency :-

The homogeneity of content in a test is manifested in the average correlation among items and the pattern of correlation. If there are item clusters, each relatively homogeneous but not correlating with each other, or correlating negatively then different factors would be present in the test. Hence while selecting the items such clusters were carefully studied.

SI model tests are designed to measure basic psychological traits. Hence each test should have all items factorially pure and measuring the same trait. Correlation of the item with external criterion which is factorially pure and also with the remaining items will be essential but is not possible. As explained earlier same information may be got by factor analysis of tests

when its items are internally consistent, homogeneous, and universal. Satisfactory item total correlation provides this information. Since item-total correlation is adversely affected by very high or very low item Ps the means of the P group are studied for judging the goodness of the item. Since higher discrimination value implies higher item-total correlation, and since both the indices give similar information as far as goodness of the item is concerned the former was not studied separately.

When the items are of forced choice type having alternatives, the Ps are corrected for chance success before finding item-total correlation. However when number of alternatives are same in the whole test, for comparing items for their goodness such correction is not essential though it was used in item-analysis study, for choosing better items.

Observations and Discussion :-

The internal consistency is the technical and statistical product of item selection procedure and homogeneity of the content of items.

All items were thoughtfully and carefully written and moderated by experts. The ambiguities if any were removed after studying distractor's strength. For final selection the items which were found satisfactory with respect to G index of agreement between items and item-total correlations in 3 zones and 3 grades, were chosen. These indices also ascertain homogeneity of tests which is very much essential in this project which aims at studying factor structure of SI model tests. Some results from item-analysis study are shown in Tables IV to Table VI. Item statistics of final versions of 90 tests are produced in Tables IX to Tables X-d.

Tables X-a to X-d show distribution of item-test correlations. These correlations are very often satisfactory and significant. Some items showing low item-test correlations are either very easy or difficult, but have been useful.

Table XI gives other measures of internal consistency, based on odd-even split half correlations where the number of test items is 10 or more, on rational-equivalence when the number of items is less than 10, and on average item-test correlation when the number of items is too small and the item score is multipoint. Most of these estimates are satisfactory. Guilford's Studies of Aptitudes of High-level Personnel report similar findings. Though distribution of item Ps, and average difficulty of the test are not always satisfactory they do not affect very much the internal consistency of the test.

Cronbach has provided a formula for multipoint score items, where $\sum Pq$ in KR - formula is substituted by $\sum Vi$, i.e. sum of item variance. However when the number of items is just 2 or 3 in fact any coefficient of internal consistency is not very meaningful. Hence average item total correlations are reported for comparing similar nature tests with each other and to give a rough estimate of internal consistency.

Estimated Stability :-

To study the stability of performance test-retest correlations were found out on a relatively small sample from urban area only. All 90 tests were administered to boys and girls of VIII Std. in a single school. The sample was divided into 8 subgroups using predetermined random order. Seven groups were given 12 tests each and one group was given 6 tests. Each student had all 6 product tests from a single content and operation. The 12 tests given to a single group were from 2 different contents and operations. The retest session was conducted 3 months after the initial session.

The effective N for both test and re-test session was about 35 for each test. Test-Retest correlations are given in Table XII. It can be seen that, except a few, they range quite widely, from .12 to .90.

There is hardly any previous study of test-retest correlations of SI model tests. Moreover the sample used in the present study is quite small and restricted to narrow age range. Hence the observations reported here should be treated as indicative rather than conclusive.

The correlations are generally high for semantic tests, and the highest for semantic relations. Tests of symbolic units also seem to give more satisfactory correlations. They are low for tests of figural units and classes, symbolic systems and semantic transformations.

The correlations for the tests of memory are not only lowest when compared to those from other operations, but also with respect to the size of the indices. For stability of performance the nature of the operation seems to be more decisive than product and content. To what extent other more technical factors account for poor stability of performance? Three characteristics of a test, namely, length, time and range of a score may have some effect on test-retest correlations. Similarly novelty of the task implies possibility of change in the working strategy in retest situation.

[1] The length of the test may affect not only the split-half correlations but also test-retest correlations. For some tests of convergent thinking the number was less than 10. A little variation in the score has a larger effect when the total number of items and the range of the score is small. However this reason does not seem to be very much powerful; as Table XII-a shows tests showing poor test-retest correlations have items from 2 to 20.

[2] The short time might be another reason. The time for each test ranged from 3 minutes to 10 minutes. In tests of memory it was generally 2 to 3 minutes for study page and 3 to 5 minutes for test page. The smallest variation in the alertness and concentration does have a noticable effect on the performance, in short term and rote memory tasks. Moreover the short time as that given in these tests was perhaps not enough for some students to find the best strategy of learning and memorizing and to use the same in retest situation. Though most of the school learning demands lot of memorization, students are not used to the nature of tasks involved in these tests. Of course, the short time is not the major reason. For tests of evaluation the time was short for a few tests where test-retest correlations are satisfactory.

[3] If the nature of the task is novel test-retest correlation is expected to be lower. In case of divergent thinking we had similar expectations. These correlations though not very low, are generally lower than those for convergent thinking and evaluation. However in case of divergent thinking the test time was generally 10 minutes for each test and though the number of items was less the number of possible responses was relatively unlimited. Perhaps this fact might have put the tests of divergent thinking rather ahead of tests of memory.

[4] Performance in tests of symbolic units, semantic thinking, tests of relations, seems to be more stable. Perhaps school training emphasizes verbal ability, and demands more from units, systems, and relational thinking; the familiarity with and the practice of them result in a greater stability of similar performance in test situation. Most of the item forms in semantic tests are of usual type that can be seen in various examinations.

For SPM which contains 60 items in the form of figural matrix the time was 60 minutes. However, test-retest correlation for SPM is little less than a few semantic tests of convergent thinking, thus showing that the time and length are not decisive factors every where. Moreover Memory for figural matrix (MFR) has lower test-retest correlation. It again suggests that the nature of intellectual function is more important than the content.

An attempt was made to find whether the amount of test-retest correlation has any association with the coefficients of internal consistency, and content of the test but no such relationship was observed(Table XII-b P35).It implies that the reasons of low test-retest correlations do not lie in the techniques used in test construction. Similarly in symbolic tests, the content was in the form of numbers or words. However this variation in the content does not induce any distinction with respect to stability of the performance.

The way of responding seems to be more prominent reason. The contents of the tests where test-retest correlations are low are of different types some of which the examinees are familiar with, and some other which they are not familiar with.

The first and foremost reason seems to be that intra-individual fluctuations over the time are more effective in simple intellectual functions such as those measured through SI tests. The amount of fluctuations depend on the nature of the function, familiarity of the task, and situational factors. The nature of the memory functions might be more susceptible to external factors.

When 6 scores on product-tests were aggregated to give a single score for a certain operation and content there was more stability. Test-retest correlations of aggregate CF and aggregate MF scores are 0.81 and 0.58, showing that for a more general thought process stability is higher though individuals' performance on the minute components may fluctuate.

Two other studies following this project supported the results with respect to memory. In one study 30 tests of systems and transformation were administered to grade VIII students (N = 211) from 5 schools, initially and after 25, 50 and 75 days, and in another study to grade VII rural students (N=92) initially and after 40, 80 and 120 days (Sukhatme, Khire : Interim reports 1986, 1987). Both these studies showed lower test-retest correlations with respect to memory tests.

To prevent such fluctuations a higher degree of experimental control that can be applied through instructions, time limit, and format of the item and its presentation is required. It is more difficult in memory tests partly because of their two stage character. There are too many options open to the examinee in the study-part as well as retention test part. These troubles with memory tests were noticed in the original studies also (Guilford 1972). Guilford had also thought of laboratory techniques and computerized test administration which as he noted were impractical. Thus, though ability to memorize is an important intellectual function, its measurement and establishing stability of the performance are not very successful.

Our observations with SI model tests are consistent with results from other studies where memory is measured in a different form, and in an individual testing. In one study (Khire 1984) memory test from Bhatia's Performance Test Battery was found to show lowest relation with total score. Students of the same IQ show greater fluctuations on memory tests.

For conclusive remarks, we will have to undertake a deeper study of the process of memory and the measurement of its output in various settings.

TABLE - XII - b

Internal consistency of the Tests showing Poor Test-Retest Correlations

Test names in Triagram Symbols		Test-Retest Correlations	SB Coefficients of Internal Consistency	Number of Items
111	CFU	.06	.70	10
112	CFC	.12	.99	10
126	CSI	.22	.83 (Average item-total correlation)	2
211	MFU	.24	.77	20
213	MFR	.23	.83	6
223	MSR	.24	.58	10
224	MSS	.06	.77	20
226	MSI	.24	.78	10
235	MMT	.20	.81	10
236	MMI	.18	.80	12

Grade Means :-

Table XIV gives Ms and SDs of 90 tests for grades 8th, 9th and 10th. Though generally the mean scores seem to increase with grades, the difference between 9th and 10th grade is quite negligible at many places and sometimes it is also in favour of the lower grade. Such is the case in almost all tests of memory and in most of the semantic tests. The difference between 8th and 9th grade is significant and in favour of the higher grade most of the times except the tests of symbolic memory and evaluation. The differences are more appropriately revealed on tests of cognition in all 3 contents and also in tests of convergent and divergent thinking in figural and symbolic content.

Though the inconsistencies observed in our data do not warrant any conclusion unless there is a sound support, it is worth considering some of the possible reasons. One explanation is that it is bound to happen to some extent in the vast data on 90 tests. As compared to the population the sample size is relatively small. One reason also goes to sampling difficulties. Possibility of absence of bright students from the class 10th for the test, who might have been engaged in extra exercises for the board examination, cannot be overlooked. However such sampling errors do not produce sound reasons for fluctuations in the gradewise average performance because the sample was always same for 6 product tests in a single content-operation but sometimes inconsistencies were observed only on some product tests.

Difficulty level of the whole test can be one of the reasons. For example the tests of memory and evaluation resulted to be easy hence we expect them to be less discriminating between 9th and 10th grade. However the difference between 9th and 10th grade is less or inconsistent only on figural and semantic memory tests while that in the 8th and 9th grade is so only on symbolic tests.

At this place it should be noted that the mean age for each grade showed expected increase with grade (Table VIII). Thus lack of grade differences has no relation with average age of each grade. Such observations suggest some other characteristics of the test and some other external factors accounting for lack of, or inconsistent grade differences.

Learning pressure can be a probable reason inducing an expected drop in average performance. In some previous studies with tests of divergent thinking the average pefformance was found to drop down at certain stages during the growth period (Khire 1971). However there is very little previous evidence for

grade differences on other SI model tests. The pioneers' studies do not show whether mean score on SI model tests increase with grade or age. While exploring the SI model concept Guilford had mostly used single grade group. Where there were two or more levels they were combined in one.

On many other tests of intelligence for teenagers the grade difference after 9th Std. or age difference after 14 years is not consistent and significant. For Raven's Standard Progressive Matrices separate norms are not provided for the ages between 14 years and 20 years. For Kuhlmann Anderson Scale the norms are same for the grade 9th and above, though it measures academic intelligence.

One more reason for fluctuations in gradewise mean scores, might be that SI abilities are highly specific and too narrow. We cannot generalize very much from one situation to another, and cannot expect the same growth pattern for different factors. A previous study with SI model tests had indicated similar results (Khire 1970).

A more striking and serious observation is that we are not being trained in certain ways of thinking. Certain abilities do not get enough scope for development through school work. Majority of students found certain tests of divergent thinking and transformation and implications quite difficult. Perceiving figures and numbers in different ways, breaking the old idea and redefining the situation seems to be almost impossible for many. Many abilities from convergent thinking too remain outside the school training. Since the scope of the present report does not allow detailed testwise discussion of the results of 90 tests separately, only summerized observations are noted here. Results from correlational and factor analysis which can be seen in the following sections, also support these findings to some extent. If the formal training or school education is functional in developing SI abilities, then we may expect higher relationship between the two implying high correlations between school subjects and SI abilities. What we find is totally different. The relationship is positive but only moderate or very low.

Urban Rural Differences :-

Ninety tests, 3 zones (Urban, Rural, Metropolitan) and 3 grades yield 810 means. All these means are not reported here but they were studied for zone differences and the observations are given here. For representative results refer to the Table XIII. The number of comparisons of 3 zone means of each of 90 tests for 3 grades also would be 810. Out of 810 comparisons 12 were not available due to some practical reasons such as failure of computer system.

Thus the total number of Means remained to be 798. The overview of these means showed that urban-rural or urban-metropolitan differences are not always significant. Moreover though the difference is generally in favour of metropolitan group when compared with urban group, and in favour of urban group when compared with rural group, urban-rural difference is noted more often than metropolitan-urban, and ther are a few reversals too. In a more detailed analysis (Patwardhan 1988) it was found that the zone differences were significant at .01 level in 610 out of 798 comparisons i.e. in nearly 25 p.c. of comparisons the difference was not significant; moreover out of significant differences 5 were in the reverse direction. On one test of divergent thinking, viz., DSU the rural group from Std. X was superior to urban and even metropolitan . On 6 other tests of symbolic convergent thinking urban students from Std. VIII were superior to metropolitan. Here urban students were from Pune while metropolitan were from Borivali and Parel. Such superiority of urban students was not noticed in other content areas for the similar sample.

This may be expected due to culture of Pune City however why difference is significantly reversed only on these and not on other tests remains unexplained. Another noteworthy observation is that urban-rural difference is most in the semantic areas and least in the figural area.

A closer analysis reveals the information given in the following table :-

TABLE - XIV - b

The number of comparisons showing urban-rural or urban-metropolitan differences, not significant

	C	M	D	N	E	TOTAL
Figural	7	19	12	10	13	61
Symbolic	7	19	16	5	20	67
Semantic	13	16	10	14	7	60
T O T A L	27	54	38	29	40	188

It appears that differences are more in figural and symbolic cognition, symbolic convergent thinking and semantic evaluation; it is maximum in cognition and convergent thinking and minimum in memory. As far as content is concerned there does not seem to be much distinction.

When these differences are studied gradewise it is noted that the differences are more in the 8th grade and they reduce gradually in the 10th grade. Even though there are some limitations due to nature of the tests, it may imply that formal training is helping to reduce the urban-rural difference.

If the mean ages of urban, rural and metropolitan groups are compared, we find rural students always older than urban and metropolitan students from the same grades. They also show wider age range. Similarly urban students are found many times older than metropolitan students from the same grades.

. However this does not imply any relationship with urban-rural differences and grade differences in the performance on tests.

Sex Differences :-

In item analysis study, sex differences were found to be inconsistent and insignificant. Hence they were not studied from normative data, for the purpose of the present report, which is limited to presentation of grade-wise norms.

(VI) FACTOR ANALYSIS [FA] STUDY :

Sample :-

To control as many variables as possible except the test scores, the sample was drawn from only 9th grade boys (N = 219) from 2 nearby schools. Both these schools have a long standing, are centrally located and admit the students from various parts of the city. The sample showed expected distribution. With respect to mental ability and scholastic intelligence. There was a slight positive skewness on Raven's Standard Progressive Matrices while the distribution of Scholastic Intelligence Scale (an adaptation of Kuhlmann Anderson) was not skewed. Out of 219 Ss, only 196 were present for all tests.

Test Battery :-

The battery included all SI model tests, Raven's Standard Progressive Matrices, Scholastic Intelligence Scale and a Reading Test. Office records were used for school marks and other necessary information. The number of variables in each case was as shown below :-

	Variable	Number
(1)	SI : Model Tests	91 *
(2)	Marker Tests : (Culture fair) Intelligence (SPM)	1
	Scholastic Intelligence (KA)	10
	Reading Speed	1
(3)	School Marks	6
(4)	Age	1
	[Ref. Table XIX for definitions and triagram symbols of 110 variables].	110

Test Administration :-

The testing program was spaced over 9 days during winter vacation. The order of administering the tests was random but same for all Ss. It was as follows :-

TABLE : XV - a

Factor Analysis : Plan of Test Administration

Day	1	2	3	4	5	6	7	8	9
Test	ES 52	MM 23	DF 31	HOLIDAY	MS 22	READING	NM 43	CS 12	SPM
REST §									
Test	CF 11	NS 42	CM 13	HOLIDAY	NF 41	EF 51	MF 21	DM 33	Scholastic Intelligence Scale
REST §									
					EM 53	DS 32	FILM SHOW #		SCIENCE LECTURE

§ : The rest period ranged from 15 to 25 minutes.

: The film show was purely for entertainment and had no relation with testing program.

Hypotheses :-

[1] Three content variables and five operation variables will yield 15 factors, each factor common to 6 product tests into the concerned content X operation category.

[2] There will not be a G - factor common to all 91 tests.

[3] No test will be significantly loaded by any other specific factor.

[4] Test No. 431 and 437 will measure the same factor.

[5] Tests designed to measure previously undemonstrated factors:- NFU, NSU, NFS, DSR will demonstrate those.

Hypothesis to be tested in each analysis separately is given given in Table XV.

Analysis :-

The number of variables to be analyzed was 110 which was quite large, There were two possible ways of analyzing these variables. Factoring all variables at a time; but it was not a wise policy, since generally the number of variables to be entered into a single analysis is not more than 40 to 45. Then another policy would be to choose suitable combinations of 90 tests with proper interlocks, and cross-validating the results of independent analyses with each other. The latter policy was employed in the present study.

The main objective of any factor analysis is to see whether the observed vast arrary of data can be rearranged or reduced to a smaller set of components that may account for major source of variance. Moreover for application of SI tests, it was essential to find out the ways in which tests can be combined into a battery, giving profile or a single weighted score, though such combinations may occasioanlly depend on the specific purpose. For example, only a few tests relevant to mathematical ability may be used, for prediction of learning ability of a high-school student choosing a course in mathematics. Apart from such specific uses, researchers are interested in knowing how different tests can be grouped together logically and on the basis of their interrelationships. The levels of generality of SI categories or the scope of commonness among the factors suggest certain ways of combination. The empirical validity of these combinations will have to be checked.

The factor analysis of 110 variables as per these hypothetical combinations may provide the required answer. Setting the hypotheses, the SI model tests were divided into small groups contentwise, operationwise and productwise; and tests from each group alongwith 19 common variables were interrelated. This design is shown in Table XV. In the contentwise analysis it was possible to see how far the operations and products can be separated from each other, while in the operationwise analysis it was possible to see how far contents and products can be separated.

Guilford has proposed operations and contents as more fundamental dimensions of thinking. In his various FAs he had noticed more difficulties in separating products. The correlational analyses in the present study too, are supporting to original studies in this respect.

Correlational Analysis :-

The inter-correlations among 110 variables were obtained in 14 different sets as defined above. The correlation matrix for each set is produced in the Table XVI.

The inter-correlations show clusters according to contents and operations but not on products. For example all tests of figural convergent thinking are closely related but all tests of classes or units do not show such relationship. The correlation matrices were further analysed to extract the factors as per the hypotheses.

Factor Analysis :-

What type of configuration of factor structure can we expect from our data?

As explained by Guilford (1985) when the tests measuring SI factors have more number of categories in common, they will show higher correlation. If there are two or more tests measuring the same factor, they will have all 3 categories common, i.e. content, operation and product. And if there are sets of tests of this type, the basic SI factors will emerge as higher-order factors. Factors having two categories in common will emerge as second-order factor. For example, semantic memory will be a common factor to MMU, MMC and others in the same category. The third-order factor will have only one category in common. For example, ability of classification or ability of divergent thinking. In ARP studies the general strategy employed by Guilford was to analyse two parallel sets of basic factors at a time in which the basic factors could emerge as higher-order factors, and operation or content category was separated in the second-order analysis, and if a more general factor was found it was only as a third-order factor.

In the present study since there was only one test for each SI factor, it was quite obvious that the SI factors as defined originally in the SI model can emerge as independent factor only as second order factor in contentwise and operationwise analyses. This limitation was accepted because the purpose of the present analysis was more restricted to test the hypotheses set by the investigator about structuring of different tests.

Another limitation is implied by the nature of the marker tests. Raven's Standard Progressive Matrices and the Scholastic Intelligence Scale based on Kulhmann Anderson's Scale are supposed to measure fluid and crystallized intelligence. Reading Speed measures a skill which is not supposed to be highly related with SI model tests though they require minimum verbal facility for taking a test. School Marks and age were other variables . Scholastic intelligence and school marks, having 10 and 6 variable scores respectively, aught to explain a large portion of total variance explained by all tests when they give scores of students from the 9th standard. Accepting this limitation these variables (Total 19) were included in the analysis to see the extent to which SI model tests get separated from them.

Procedure :-

Appropriate hypotheses were set for the purpose as mentioned above. They are shown in the Table XV. It was also hypothesized that the tests constructed for 4 undemonstrated factors, viz., NFU, NSU, NFS, DFR will demonstrate those. For these purposes the factoring method was principal component and the method of rotation was orthogonal varimax.

Before presenting the results, a brief explanation of why these methods were chosen will be in a line. The first and foremost reason to use these methods was that similar procedures were used by Guilford in original studies, when computer facilities were available. Since the present study was completely based on the SI model it was essential to follow more or less the same FA procedures that resulted into separating so many factors in SI model.

The rectangular nature of the SI model implies that SI factors are orthogonal or mutually independent. But this was not the assumption when Guilford used the orthogonal method of rotation. This method was used because it was found useful for psychological interpretation of factors and for replication from one analysis to another.

In the present study the orthogonal-varimax method was used for rotations, in which correlation between factors is arbitrarily determined to be zero and which extracts maximum amount of variance and gives smallest residuals. This procedure results in simplifying columns of a factor matrix which is very much essential in the analysis aiming at confirming the common underlying patterns in a certain chosen set of tests and also confirming independence of factors in other sets of tests. The quartimax method which

centers on simplifying the rows helps to know more about the nature of the variables.

A program was specially designed for this purpose by Dr. A.P. Kulkarni (Kulkarni 1985) from the Centre of Quantitative Research, Pune, which involved the use of principal component method. For analysing the factors in each group of variables a correlation matrix was prepared and was put in the form of a file. This file was used as the input for the factor-analysis program specially designed for the purpose. The main diagonal elements of correlation matrix were replaced with communality estimates, using the multiple - R squared. Then the estimates of communalities were improved through an iteration procedure. The number of factors was continued till the cumulative total variance explained reached 70 percent, and the individual eigen value was 1 whichever was later. The iterations for each of the factor were continued until the difference between two communality estimates was less than 0.00001.

The resulting factor matrix was rotated by varimax method under the same computer program. The method is designed for rotating two sets of orthogonal factors to congruence, by taking one set as a target and rotating the other to it. A matrix of hypothesized loadings served as a target toward which the obtained factors were rotated. For the initial rotation a single loading, equaling the squareroot of the communality, was hypothesized for each variable. With due regard for the hypothesized factor structure, 10 to 12 rotations of the whole set of factor axes were carried out.

The entire analysis was run on the ICL 1904 S computer system at RCC in the University of Poona. For more information graphic rotations of selected pairs of factors could have been executed, but this procedure was not employed.

As explained earlier 110 variables were analysed through 14 analyses having proper interlocks and giving opportunities for cross-validation. Specific details about the variables and hypotheses used in these analyses are given in the Table XV, which is followed by the results of each analysis. The results are given in 3 types of tables. The first table gives the correlation matrix, the next one presents the factors emerged from the concerned analysis and the variance explained by them, and the last one gives the factor matrix. These are the Tables XVI, XVII and XVIII.

General Observations :-

[1] In all 14 analyses, Age tended to be independent and not associated with any other variables.

[2] All 6 variables giving school marks always formed one factor though each of these variables was also loaded by some other factor.
The 6 variables were as follows :-
Marathi, Hindi, Sanskrit and English, Social Studies, Mathematics, Science, Grand Total Marks in Percentage.

[3] Similarly 8 other variables viz., Raven's SPM and 7 sub-tests from Scholastic Intelligence Scale always formed another factor. These variables are :-
SPM, two tests of Number Series, two tests of Problem Solving, Sentence Construction, Letter Perception and Vocabulary.

[4] Reading Speed, Word Arrangement, Judgement and Analogy, very often emerged as independent factors. Though all these variables were verbal tests apparently suggesting loading on language ability the tasks require quite different skills and involve different thought processes.

[5] Among the groups of SI model tests, following groups show strong evidence for common underlying patterns of thinking. These groups are :-
(i) Symbolic Cognition and Semantic Cognition,
(ii) Symbolic Memory and Semantic Memory,
(iii) Semantic Divergent Production,
(iv) Semantic Convergent Production and
(v) Figural Evaluation.

[6] Among 6 produce-wise analyses the hypothesis of independence in tests generally holds true except for the following variables :-
(i) V39, V45, V63 and V69 measuring ability of classification NFC, EFC, DSC, NSC,
(ii) V7, V84, V96 measuring Reading Speed, CMT and DMT,
(iii) V43, V49, V67, V73 measuring ability of implications NFI, EFI, DSI, NSI.

[7] Each of the SI model tests was involved in at least 3 of the 14 overlapping analyses. An overview of these 14 analyses points out that 40 out of 90 SI model tests are loaded univocally and significantly on their appropriate factors, though the specified number of factors to be extracted was less than the number of SI factors involved in the analysis.

If the number of factors to be extracted would have been greater the independence of SI factors could have been more appropriately demonstrated. In fact the results in each analysis suggest the possibility of emergence of a single variable as an independent factor after extraction of the first 5 to 6 factors.

The eighteen tests measuring factors from figural cognition, symbolic and semantic evaluation have clearly shown their independence. They do not show common underlying patterns though occasionally a few of them go with other tests of similar product. Twenty two from the remaining tests, also show their independence though some of them share the common underlying patterns, and some others do not share.

In the original studies by Guilford 4 factors, viz., NFU, NSU, NFS and DFR were not demonstrated. In the present study tests were designed to measure these factors. Two of the four factors, viz., NFU and DFR emerged as independent factors quite early and the remaining two could not be separated from other variables along the same operation and content dimension. NFS went along with other NF tests and NSU with other NS tests. Though their independence from other products is not established their validity with respect to operation and content is proved.

Two tests (V 98 and V 104) were designed to measure NMU with the intention to retain only one of them considering their reliabilities and validities. Both these tests were found to be loaded well by the higher order factor of semantic convergent thinking, in both content-wise and operation-wise analysis. NMU(I) emerged earlier as a second order factor, and two together do not measure a single factor. NMU (I) showed better indices of internal consistency, item facility values and test-retest reliabilities, though NMU(II) was not poor, and was rarely loaded on other specific factors.

<u>FA - 1 to FA - 3 :</u> Contentwise analysis :

The observations from the first 3 analyses have been reported and generalized here. FA-1 involves all figural tests, FA-2 involves all symbolic tests and FA-3 involves all semantic tests. As mentioned earlier 19 other variables were included in each analysis and were common to all groups. In all 3 analyses School Marks emerged as the first major factor as expected. The second best were Figural Memory, Symbolic Convergent and Divergent Thinking, and Semantic Convergent Thinking. The third best was always Academic Intelligence involving Raven's SPM and tests of Scholastic Intelligence Scale. Out of 10

subtests of the latter scale, 3 were rather weakly loaded by this factor. They were Word Arrangement (WAR), Letter Perception (LPE) and Analogy (ANA). The tests of Judgement (JUD) always emerged as an independent factor.

Other groups of tests showing common underlying patterns are figural evaluation, figural convergent thinking, symbolic cognition and symbolic memory, semantic cognition , semantic divergent thinking and semantic memory. The number of tests loaded on common factor, and the value of their loadings vary from group to group. In groups of figural tests, all 6 product tests do not seem to be included in the group and some of the tests show weak loadings. Four out of 6 product tests of figural divergent thinking (DFU, DFC, DFS and DFT) show one group, DFI shows independence and DFR is weakly loaded by both these factors.

Similarly among symbolic tests in FA-2,MSR remains independent from the 5 other product tests from the same operation, and among semantic tests in FA-3 MMR remains separate from 5 other tests of memory. The variables showing more independence were age, Judgement (JUD), CFI, NFC, ESI, ESU, MSR, Reading Speed (RSP), and MMS. Two variables DSU and NST came together;perhaps DSU is useful in NST. Similarly EMU and EMT emerge jointly suggesting dependence of EMT on EMU.

To conclude, the three analyses suggest the existence of operations as higher order factors or as common underlying patterns except figural cognition, symbolic evaluation and semantic evaluation. Tests from these operations seem to be more loaded by independent factors. We expect the cross-validation of these findings in 5 further analyses in which 91 SI tests are grouped operation wise.

FA - 4 to FA - 8 : Operationwise Analysis :-

The results from the first 3 content-wise analyses get validated by the next 5 operation-wise analyses.

FA-4 including all tests of cognition shows generality of symbolic cognition and semantic cognition but not of figural cognition. Factors 5,7,8 and 9 demonstrate figural products and factor 10, semantic implications. Factor 7 is common to CFR and CFT, and to CFS though weakly.

In FA-5 when inter-correlations of Memory tests were analysed three contents again appear separately as the higher-order factors, and 3 factors MSU, MSR and MMS also emerge as independent factors in the second-order analysis.

In FA-6, among the tests of divergent production, tests of semantic divergent production seem to have more generality than tests of figural and symbolic content. Again tests of DSU, DST, DSI, DFI and DFS, DFR seem to measure more independent abilities.

The results from FA-6 are different from that of FA-2 in some respects. In FA-2 divergent and convergent symbolic production emerged as the second major factor explaining greater variance and suggesting a more general ability of "Symbolic Manipulation". However when tests of only divergent thinking are analysed together, the operation dimension loses its force and the content dimension does not seem to be strong enough to bring the symbolic tests together. Hence only 3 tests - DSC, DSR and DSS appear as a single factor. Some more exploration will be essential for explanation of this fact.

FA-7 once again reveals that Semantic and Symbolic convergent production abilities are more general than figural. In the analysis of semantic tests FA-3, tests of convergent thinking appeared as the second major factor. FA-7 supports the importance of these tests.
The four tests of figural convergent thinking which appeared as a group in FA-1 show the same pattern in this analysis. As mentioned in FA-2, the second major factor was symbolic manipulation on which tests of symbolic convergent and divergent thinking were loaded highly. However when these tests are grouped with other content tests from the same operation, the symbolic convergent ability tests still hold the generality but the divergent ability tests lose this characteristic to some extent as it was noted in FA-6.

FA-8 gives analysis of tests of evaluation, where figural evaluation seems to be more general ability and most of semantic products appear independently. Four tests of symbolic content and 2 tests of Series (numerical) from Scholastic Intelligence Scale make a group demonstrated by the factor 4. Though ESU, ESC and ESR are weakly loaded by this factor, all these tests suggest a more general ability as Evaluation of Symbols, which was not noticed in the analysis of symbolic tests in FA-2. Two tests EST and ESI which remain aloof, are nonsense syllable tests presenting tasks of quite a different nature.

<u>FA - 9 to FA - 14 : Productwise Analysis :-</u>

In the last 6 product-wise analyses, School Marks and Academic Intelligence were always found as the major factors as in the 8 previous analyses. The product dimension does not seem to provide a strong common ground to bring the same product

tests together at least for the same operation or for the same content. Thus we may expect all figural tests of Units from 5 operations, or Cognition Unit tests from 3 contents to come together. For example, in FA-9 DFU, DSU and DMU make a group. However, we find in general independence of tests along product dimension. At some places some tests of classification, or relation, show commonness, but many other groups suggest some confusion over the products, rather than a systematic tendency. A more closer study of the nature of the tests will throw some light on these mixtures and will also help to improve the tests.

Thus the results of 14 FAs are quite satisfactory. In each of the first 8 analyses the first question was how well six tests from a single content and operation get segregated from the parallel abilities; e.g. symbolic memory to be segregated from semantic memory, such separation was always observed. Separation of SI content categories, show that our attempt to control cross-overs or the translation between different contents has been mostly successful. A few instances of such translations are in FA-10 (MSC - MMC), FA-11 (DFR -DMR), FA-13 (EMT-EST) and in FA-16 (MSI - MMI). In FA-9 three tests of Units of Divergent Thinking -DFU, DSU, DMU - come closer suggesting more generality of fluency of thinking irrespective of the nature of content. Perhaps the technique used by the examinee to produce more responses is basic in all situations and might be somewhat mechanical showing its utility in many situations. Though a further analysis of the content of the item and the type of response is essential for conclusive remarks, it is clear that these observations have some relevance for training of certain skills.

Since cognition is basic condition to all intellectual functions, and since production rests upon recall of information from memory storage, one would expect such relationship to be reflected in factorial structure, however such relationship was very rare. Thus prediction of right kind of content and operation seem to be possible. Tests for each figural-cognition ability, symbolic evaluation ability and semantic evaluation ability showed unusually small amount, or an absence of overlapping with one another, showing that the product aspect of each factor was well controlled, or that there is less possibility for generality of understanding of figural information, evaluation of symbolic and semantic information. The kind of product under process is of more importance. A more critical analysis of our observations and some other studies are essential for verifications.

Most analyses, even with SI tests, show number factor. Such factor was not always observed in our analysis.

Limitations :-

Though there are some limitations induced by the way we have combined the tests, it does not seem to affect the results. The results from one analysis get validated by the results from other analysis. The other limitation due to the marker tests is worth considering. It might be useful to analyze the same set of correlations among certain SI variables alongwith other SI variables as markers. The non-SI variables quite large in number, explain larger amount of variance. Had it been smaller, more SI variables could have been emerged earlier.

The size of the sample used for normative study and also the factor analysis study was smaller than ideally what is expected. However considering the results of the present project and the applicability of SI model, establishing norms for all 90 tests, on a very large sample, including thousands of Ss is not recommended though revising norms might be useful.

Since the tests have been constructed in Marathi using Marathi speaking sample of school going children for application in other languages and for non-school individuals some adaptations will be essential.

At some places, particularly in case of memory and evaluation tests, results point out the need for better test controls. A partial replication of the study in this respect will be useful.

Use of Tests :-

The project has produced a great number of tools for research. The differential testing will reveal intellectual functions where training is required. With the model of items in these tests more specific programme for teaching can be chalked down, and different types of items can be introduced in the selection procedures for tapping the talents at the national level.

With the help of these tests there can be many more replications by adapting them for use in different languages. The researcher may choose the tests as per the purpose. The scores on the tests may be converted into standard scores using the grade means and SDs given in this report and an aggregate score giving measure of the defined ability may be calculated. This score can be used for differentiating between individuals. Local norms for aggregate scores may be established if essential.

If the researcher is interested in more general abilities as those suggested by the results of factor analyses, the factorial loadings will help to assign weightages to the test scores for obtaining a single score.

Though the study aimed at finding norms for 8th, 9th and 10th grade, the 7th grade sample was used in all pre-item analysis studies. The suitability of these tests for 7th grade has been verified in other studies. Hence it is suggested to find the norms also for 7th grade sample.

Contributions :-

The main objectives of the project were limited to construct 90 tests for measuring 90 factors from SI model, to standardize them, to find the norms for the 8th, 9th and 10th grade and to find the ways of combining these tests into suitable groups. No battery of tests has been yet produced which is as comprehensive as the present one (Guilford's letter dated 28th October, 1977). It was possible to construct the tests which were internally consistent. Their validity for content and operation under measurement was established. After verifying their potential for common underlying patterns, their independence also could be seen though in the second order analysis. There was no evidence of G common to all 90 SI tests.

Tests were constructed for the factors not demonstrated in the original studies. They were found to be valid for the content and operation defined by them.

Some new procedures in test construction have been introduced while analyzing data on tests of memory and divergent thinking. It was possible to control cultural biases to some extent. This fact has been reflected in two important observations. Firstly, there was no sex difference, whatever slight differences were observed they were not consistent, and secondly, the urban-rural differences were insignificant on some tests.

The contribution of SI model need not be mentioned again at this place. However, one of the observation that should be repeated is that, SI model tests revealed the limitations of our educational system. We found our students not trained for many intellectual functions. It is essential to replan our education, including these functions. With SI tests, differential testing revealing intellectua functions where more training is required, is possible. With the model of items in SI tests, more specific programmes for teaching can be chalked down, and a variety of abilities can be brought under the scope of measurement.

Secondly, the results suggest the possibility of reducing urban rural differences which is one of the most significant observation. While tapping the intellectual processes, if materials familiar to different cultures are used, the differences are reduced. If psychologists try to sample many skills which are valued by societies they can arrive at better results.

If we assume that society has a responsibility for the well-being of all citizens, then test results are to be interpreted as opportunities to help, showing the areas to build on and introduce the programmes, to improve schools and environment; Guilford's SI model is the essential resort for this purpose, though it is not ultimate.

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* : Secondary Source.

TABLE - I

THE AD-HOC BATTERY OF 39 TESTS INCLUDING STANDARDIZED AND NON-STANDARDIZED VERSIONS MEASURING 37 ABILITIES FROM SI MODEL USED IN THE PILOT STUDY

OPERATIONS → / CONTENT ↓	Cognition	Memory	Divergent Production	Convergent Production	Evaluation
Figural	CFC, CFR, CFT	MFU	DFU, DFC, DFI		EFU, EFR
Symbolic	CSS, CST CSI	MSU, MSS, MSI	DSU	NSC, NSS, NSI	ESU, ESC, ESI
Semantic	CMU, CMC, CMR, CMS		DMU, DMC, DMI	NMU, NMR, NMS, NMI	EMU, EMC, EMR, EMS

TABLE - IA

MEANS AND STANDARD DEVIATIONS OF SI MODEL TESTS ADMINISTERED TO A GROUP OF 47 ADULTS

FACTORS	Architecture N = 5		Engineering N = 14		Medical N = 8		Commerce N = 10		Language N = 10	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	Sd
1) CFC	6.40	3.44	10.43	2.26	7.75	1.62	6.30	2.48	6.80	3.31
2) CFT	36.00	5.39	30.60	9.47	23.78	7.71	18.10	9.29	21.67	8.51
3) MFU	9.20	0.75	7.85	1.69	6.25	1.48	5.10	2.39	5.30	1.55
4) EFU	57.00	5.02	70.27	8.78	60.22	5.22	56.20	10.06	64.06	10.72
5) NSI	9.00	4.05	13.00	1.65	9.13	2.15	8.50	3.29	7.70	2.49
6) CMU	6.60	1.85	10.60	2.50	10.10	2.38	7.90	3.11	10.70	1.75
7) NMR	10.00	2.53	14.87	2.33	14.89	2.08	14.00	2.61	12.78	3.82
8) NMS	6.60	1.74	7.87	2.99	9.11	1.10	6.60	2.11	10.00	2.94

TABLE - II

SAMPLE USED FOR PRE-ITEM ANALYSIS STUDY

	Std. VIII		Std. IX		Std. X		Total Boys	Total Girls	GRAND TOTAL
	Boys	Girls	Boys	Girls	Boys	Girls			
Symbolic and Semantic Tests	82	21	33	25	65	34	230	80	210
Figural Tests	75	94	95	73	122	43	202	303	505

TABLE - IIA

PRE-ITEM ANALYSIS STUDY OF THE
TEST OF CONVERGENT FIGURAL TRANSFORMATION, (NFT - 415)

Means, Standard Deviations and Indices of Skewness

STD.	VIII	IX	X
N	155	142	119
M	11.19	12.78	13.59
SD	3.77	3.15	3.49
P 27	8.79	10.65	11.62
Mdn	11.15	13.17	13.54
P 73	13.77	14.97	16.07
SK	0.032	0.37	0.043

TABLE - III

SAMPLING DESIGN FOR ITEM ANALYSIS STUDY

DISTRIBUTION OF SAMPLE OVER CONTENTS, OPERATIONS AND GEOGRAPHICAL AREAS

AREAS	URBAN (U)			RURAL (R)			METROPOLITAN (Mt)			TOTAL
Contents	F	S	M	F	S	M	F	S	M	(N)
Operations										
C	151	137	156	95	99	80	50	52	48	868
M	106	104	83	91	97	131	100	77	51	840
D	140	151	153	79	134	93	53	50	46	899
N	92	103	104	84	97	112	76	77	74	819
E	106	84	108	183	143	122	52	48	50	896
TOTAL N =	595	579	604	532	570	538	331	304	269	4322

Total Ns =

CONTENTS : F = 1458, S = 1453, M = 1411

AREAS : U = 1778, R = 1640, Mt.= 904

The contents are,

*F = Figural, S = Symbolic, M = Semantic, other letters in the tables show Operations.

The Operations are,

* C = Cognition, M = Memory, D = Divergent Production, N = Convergent Production, E = Evaluation.

* The two dimensions under consideration are operation and content.

* Products are not reported separately, as all the six products are included in each operation.

TABLE - III-a

SAMPLING DESIGN FOR ITEM ANALYSIS STUDY

Plan of Test Administration

URBAN AREA

* PLACE / GRADE	1	2	3	4	5	6	Contents	N
8	C	M	D	N	E	C	F	314
8	N	E	C	M	D	D	M	311
9	M	D	C	C	N	E	S	284
9	E	C	N	D	D	M	F	281
10	D	C	M	E	C	N	M	293
10	D	N	E	D	M	C	S	295
N	322	316	254	290	296	300		1778

RURAL AREA

* PLACE / GRADE	7	8	9	10	11	12	Contents	N
8	M	D	E	C	N	E	S	279
8	E	C	N	E	D	M	F	283
9	D	E	M	E	C	N	M	277
9	D	N	E	D	M	C	S	291
10	C	M	D	N	E	E	F	249
10	N	E	C	M	M	D	M	261
N	303	250	236	232	301	318		1640

METROPOLITAN AREA

* PLACE / GRADE	13	14	15	16	17	18	Contents	N
8	D	N	M	E	C	N	M	145
8	M	N	E	D	M	C	S	153
9	C	M	D	N	E	N	F	156
9	N	E	C	M	M	D	M	124
10	M	D	N	C	N	E	S	151
10	E	C	N	M	D	M	F	175
N	143	150	153	100	158	150		904

* CODE FOR PLACES

1. Nagar
2. Wardha
3. Aurangabad
4. Akola
5. Sangali
6. Kolhapur
7. Supa & Pathardi
8. Selu
9. Chikalthana
10. Barashitakli
11. Nandre
12. Kerle
13. Girgaon
14. Dadar
15. Mulund
16. Vileparle
17. Goregaon
18. Boriwali

TABLE - IV

REPRESENTATIVE TEST STATISTICS FROM ITEM ANALYSIS STUDY

TEST : 415 § ITM : 20 TYPE : 2 ALTER

ONE	GRADE	SEX	TOTAL	S.S	MEAN	S.D	OBSV.
1	8	1	353	3379	8.61	2.87	41
1	8	2	86	972	8.60	7.82	10
1	9	2	324	2836	7.90	2.60	41
2	1	1	290	2916	9.06	3.00	32
2	1	2	41	353	8.20	1.83	5
2	8	1	235	1923	6.53	3.28	36
2	8	2	34	250	5.67	3.08	6
3	1	2	202	1838	8.08	2.86	25
3	9	1	49	809	16.33	1.73	3
3	9	2	565	7383	12.02	3.55	47
			2197	22661	8.96	3.69	246

Sex : 1 - Male, 2 - Female

Zone : 1 - Urban, 2 - Rural, 3 - Metropolitan

ANALYSIS OF VARIANCE

OURCE	DF	S.S	M.S	F
ETWWEN MEANS	9	947.15	105.23	10.31
ITHIN MEANS	236	2407.91	10.20	H.S.
O T A L	245	3355.06		

§: For trigram symbols of the tests refer to figure 1, and Table - XIV.

ONE	GRADE	SEX	TOTAL	S.S	MEAN	S.D	OBSV.
1	8		439	4351	8.61	3.34	51
1	9		324	2836	7.90	2.60	41
2	1		331	3269	8.95	2.87	37
2	8		269	2173	6.40	3.28	42
3	1		202	1838	8.08	2.86	25
3	9		614	8194	12.28	3.61	50
			2197	22661	8.86	3.69	246

ANALYSIS OF VARIANCE

URCE	DF	S.S	M.S	F
TWWEN MEANS	5	889.58	177.91	17.32
HIN MEANS	240	2465.48	10.27	H.S.
T A L	245	3355.06		

TABLE - V

REPRESENTATIVE ITEM STATISTICS FROM ITEM ANALYSIS STUDY

TEST : 415 ZONE : 3 GRD : 9 ITEM Ps, ITEM-ITEM AND ITEM-TOTAL CORRELATIONS

ITEM	P	P'	R	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	MP
1	.54	.42	.25		.42	-.06	.32	.41	.33	.51	.54	.33	.42	.29	.03	.64	.03	.10	.11	.59	-.15	.20	.27	13.37
2	.78	.72	.35			-.28	.53	.28	.44	.70	.46	.29	.44	.57	.29	.40	.41	.18	.39	.58	-.37	.09	.25	13.08
3	.22	.02	-.06				-.39	-.17	.20	-.26	-.24	-.41	.66	-.31	-.28	-.15	-.40	-.03	-.35	-.18	.35	-.11	-.07	13.91
4	.90	.87	.18					.58	.24	.57	.45	.73	.33	.61	.59	.45	.79	-.08	.69	.57	-.70	.00	.53	12.53
5	.78	.72	.52						.50	.67	.49	.61	.57	.61	.53	.46	.54	.03	.53	.57	-.44	.18	.47	13.46
6	.58	.47	.42							.46	.33	.35	.47	.44	.17	.28	.19	-.22	.14	.55	.05	.52	.56	13.90
7	.80	.75	.34								.79	.73	.64	.60	.41	.47	.37	-.03	.55	.66	-.25	.27	.52	12.98
8	.62	.52	.39									.58	.71	.46	.26	.43	.22	-.12	.49	.46	-.17	.24	-.48	13.61
9	.94	.80	.39										.44	.65	.62	.41	.68	.00	.64	.56	-.41	.24	.75	12.98
10	.60	.50	.32											.56	.24	.37	.18	-.21	.42	.33	-.17	-.05	.43	13.43
11	.74	.67	.39												.51	.54	.61	.20	.70	.55	-.22	.24	.55	13.27
12	.70	.62	.39													.30	.79	.00	.58	.29	-.28	.18	.54	13.40
13	.62	.52	.23														.38	.27	.57	.60	-.35	.05	.26	13.10
14	.70	.62	.30															.03	.61	.38	-.41	.05	.61	13.14
15	.39	.22	.24																.18	.28	.08	.00	-.73	13.95
16	.82	.77	.24																	.50	-.43	.00	.43	12.76
17	.70	.62	.47																		-.40	.33	.41	13.63
18	.16		.00																			.20	-.50	15.75
19	.24	.05	.17																				.45	15.00
20	.56	.45	.43																					14.00

TABLE - V-a

WORKING SHEET FOR ITEM SELECTION, SHOWING SUMMARY OF

INFORMATION about ITEM STATISTICS in SIX GROUPS : ITEM CORRELATIONS and P's

4 1 5

— : A little below the criterion for point biserial.

✓ : Satisfying in G index.

⋰ : A little below the criterion for G

• : Satisfying in point biserial

Numbers before the decimal show ZONE : 1 = URBAN, 2 = RURAL, 3 = METROPOLITAN.

Numbers after the decimal show GRADES.

GROUP CODE : 1.8 = a, 1.9 = b, 2.10 = c, 2.8 = d, 3.10 = e, 3.9 = f.
(First digit → Zone, Second digit → Grade)

GROUP → / ITEM NO. ↓	1.8	1.9	2.10	2.8	3.10	3.9	AVERAGE 'P'	Range of P → / ITEM NO. ↓	96 & above	91-95	76-90	51-75	26-50	11-25	6-10	5 & below	Correlation
									(Distribution of P for each item in Six groups).								
1	✓	✓	✓—	✓		✓—	.26	1				f,	c,	a,b,d,e			
2	+—	•	—	•	✓—	✓•	.62	2			f,	a,b.c,d	e,				
3	✓	✓	✓	✓		•	.12	3						d,e,f,	a,b,	c,	
~~4~~	+•		—	—	—	✓	.70	4									
~~5~~	+•	—	•			✓•	.71	5									
6	✓	✓	✓	⋰—		✓•	.30	6				f,	d,	a,b,c,e,			
7	•	⋰—	⋰—	✓—		✓•	.49	7			f,	a,e,	b,c,d,				
8	✓•—	✓	⋰	✓	✓•	✓•	.35	8				f,	a,c,	b,d,e			
9	+•	—	•	•	✓•	✓•	.64	9			a,f	c,e,	b,d,				
10	✓—	—	✓—	—	—	✓•	.41	10				f,	a,b,c, d,e				
11	•	•	•	✓•	✓—	✓•	.50	11				a,f	b,c,d,e				
~~12~~	+•	—	•		—	✓•	.59	12									
13	•	⋰—	✓—	✓	✓•	✓—	.36	13				f,	a,b,c,e	,d,			
14	+•	•	—	—	✓•	✓•	.49	14				b,f	a,c,d,e				
15	✓	✓	✓	✓		—	.21	15					f,	a,b,c,d, e,			
~~16~~	•	•	—		✓•	✓—	.71	16									
17	✓•	⋰	⋰—	✓•—	—	✓—	.48	17				c,f,	a,b,d,e				
18	✓	✓		✓			.13	18					c,	a,b,d,e			

-: 63 :-

TABLE - V- b

TEST 415 DISTRACTION VALUES
OF THE WRONG CHOICES IN THE FINAL VERSION

Alternative	1		2		3		4	
ITEM	f No.	%	f No.	%	f No.	%	f No.	%
01	12	8	106	70	13	9	15	10
02	108	72	20	13	9	6	10	7
03	83	55	8	5	34	23	16	11
04	4	3	12	8	106	70	16	11
05	15	10	100	66	12	8	14	9
06	100	66	14	9	6	4	17	11
07	25	17	16	11	85	56	16	11
08	16	11	9	6	16	11	99	66
09	25	17	60	40	29	19	23	15
10	7	5	44	29	25	17	55	36

f = frequency. ( ) = Encircled places show correct answers.

TABLE - VI

ITEM ANALYSIS OF TEST OF DIVERGENT THINKING
Item Mean Scores and 'D' Scores

D S I - 3 2 6

RURAL	Std. IX	N=27	URBAN	Std. IX	N=38	METROPOLITAN	STD.IX	N=25

* Itemwise 'D' scores, i.e., number of different responses.

Item→	1	2	3	4	5	T	Item→	1	2	3	4	5	T	Item→	1	2	3	4	5	T
H	11	11	9	5	4	40	H	9	15	7	7	8	46	H	11	[illegible]	4	3	5	34
L	7	8	4	3	4	26	L	9	8	2	1	3	23	L	7	[illegible]	1	4	3	25
C	7	6	4	3	3	23	C	8	8	1	1	3	21	C	6	[illegible]	1	3	2	21
T	11	13	9	5	5	43	T	10	15	8	7	8	[illegible]	T	12	[illegible]	4	4	6	38

* Itemwise total number of responses and Mean Scores.

Item→	1	2	3	4	5	T	Item→	1	2	3	4	5	T	Item→	1	2	3	4	5	T
H	31	22	18	12	10	93	H	43	50	24	25	19	161	H	31	[illegible]	11	6	22	107
L	14	10	5	6	7	42	L	17	16	3	8	6	50	L	19	[illegible]	1	5	3	55
T	45	32	23	18	17	135	T	60	66	27	33	25	211	T	50	[illegible]	12	11	25	162

M = 4.60   Mdn = 4.00   M = 5.60   Mdn = 6.50   M = 6.60   Mdn = 7.00

H = Higher group   T = Total

L = Lower group   M = Mean

C = Common Responses   Mdn = Median

TABLE - VII

SAMPLING DESIGN FOR NORMATIVE STUDY

DISTRIBUTION OF SAMPLE OVER CONTENTS, OPERATIONS AND GEOGRAPHICAL AREAS

AREAS	URBAN (U)			RURAL (R)			METROPOLITAN (Mt)			TOTAL N
CONTENTS	F	S	M	F	S	M	F	S	M	
OPERATIONS										
C	379	397	526	287	383	248	304	311	317	3152
M	270	278	419	399	265	463	196	303	307	2900
D	407	395	512	279	388	291	305	329	325	3227
N	282	302	400	289	285	263	435	382	425	3063
E	302	297	394	392	284	295	394	373	334	3065
TOTAL N =	1640	1669	2251	1646	1605	1560	1634	1698	1708	15411

Total Ns = <u>CONTENTS</u> : F = 4920, S = 4972, M = 5519

<u>AREAS</u> : U = 5560, R = 4811, Mt = 5040

The contents are, * F = Figural, S= Symbolic, M = Semantic, other letters in the tables show Operations.

The operations are, * C = Cognition, M = Memory, D = Divergent Production, N = Convergent Production, E = Evaluation.

* The two dimensions under consideration are operation and content.

* Products are not reported separately, as all the Six products are included in each operation.

TABLE - VII-a

SAMPLING DESIGN FOR NORMATIVE STUDY

Plan of Test Administration in Urban Area
showing distribution of operations and content areas over different places

*PLACE / GRADE	1	2	3	4	5	6	CONTENTS	N
	OPERATIONS						↓	
8	C	M	D	N	E	(C)	F	611
8	N	E	C	M	(D)	D	M	606
9	M	D	(C)	C	N	E	S	607
9	E	C	N	(D)	D	M	F	615
10	D	(C)	M	E	C	N	M	605
10	(D)	N	E	D	M	C	S	603
N	603	592	626	591	624	609		3645

* CODE FOR PLACES

1. Dhule
2. Akola
3. Solapur
4. Chandrapur
5. Aurangabad
6. Ratnagiri

GRADE	* 19					CONTENTS	N
8	C	M	D	N	E	S	460
9	C	M	D	N	E	M	1029
10	C	M	D	N	E	F	426
N	386	372	395	368	394		1915

19. Pune

TABLE - VII-b

SAMPLING DESIGN FOR NORMATIVE STUDY

Plan of Test Administration in Rural Area
showing distribution of operations and content areas over different places

*PLACE / GRADE	7	8	9	10	11	12	CONTENTS	N
	OPERATIONS							
8	M	D	(C)	C	N	E	S	553
8	E	C	N	(E)	D	N	F	607
9	D	(M)	M	E	C	N	M	559
9	(D)	N	E	D	M	C	S	556
10	C	M	D	N	E	(M)	F	607
10	N	E	C	M	(M)	D	M	567
N	555	622	513	598	553	608		3449

*CODE FOR PLACES

7. Phagane, Dist. DHULE
8. Kamargaon, Dist. AKOLA
9. Bale-Tirhe, Dist.SOLAPUR
10. Rajura, Dist.:CHANDRA
11. Phulambri, Dist. : AURANGABAD
12. Pawas, Dist. : RATNAGIRI

GRADE	* 20					CONTENTS	N
8	C	M	D	N	E	M	445
9	C	M	D	N	E	F	486
10	C	M	D	N	E	S	431
N	285	256	269	267	285		1362

20. Khed-Shivapur, Dist. PUNE

TABLE - VII-c

SAMPLING DESIGN FOR NORMATIVE STUDY

Plan of Test Administration in Metropolitan Area
showing distribution of operations and content areas over different places

*PLACE / GRADE	13	14	15	16	17	18	CONTENTS	N
	OPERATIONS							
8	D	(N)	M	E	C	N	M	615
8	(E)	N	E	D	M	C	S	588
9	C	M	D	N	E	(N)	F	529
9	N	E	C	M	(E)	D	M	470
10	M	D	(N)	C	E	E	S	593
10	E	C	N	(E)	D	M	F	598
N	573	400	615	602	500	628		3398

* CODE FOR PLACES

13, Mulund, Bombay
14, Boriwali, Bombay
15. Parel, Bombay
16. Girgaon, Bombay
17, Vile-Parle, Bombay
18. Goregaon, Bombay

GRADE	* 21					CONTENTS	N
8	C	M	D	N	E	F	507
9	C	M	D	N	E	S	512
10	C	M	D	N	E	M	623
N	307	299	391	302	343		1642

21. Dadar, Bombay

TABLE - VIII

GRADEWISE AND ZONEWISE MEDIANS OF AGE IN YEARS

ZONE GRADE	METROPOLITAN	URBAN	RURAL
8th	12.7	12.4	13.6
9th	13.6	13.6	14.9
10th	14.6	14.7	15.8

Since the birthdates reported by students and even the school records of rural students were not always reliable, this information was not further analysed.

TABLE - IX

REPRESENTATIVE ITEM STATISTICS BASED ON DATA IN NORMATIVE STUDY OF FINAL VERSION OF THE TEST

Coefficient of internal consistency (R - p.bis.), Index of item difficulty and reliability

TEST NO. : 415 ITEMS 10

GRADE / ITEM	8 P	8 r	9 P	9 r	10 P	10 r
1	0.76	.34	0.83	.46	0.85	.51
2	0.73	.37	0.87	.50	0.85	.59
3	0.49	.70	0.69	.61	0.70	.58
4	0.66	.62	0.81	.53	0.76	.59
5	0.48	.59	0.68	.52	0.68	.56
6	0.60	.62	0.68	.57	0.67	.62
7	0.54	.64	0.68	.64	0.69	.66
8	0.59	.63	0.75	.53	0.73	.60
9	0.30	.62	0.41	.37	0.47	.58
10	0.42	.62	0.44	.54	0.47	.56
Rational Equivalence	.82		.75		.79	

Split-half Reliability .50

TABLE - X - a

§OPERATIONWISE PERCENT FREQUENCY DISTRIBUTION OF ITEMS ALONG ITEM-TOTAL CORRELATIONS POINT BISERIAL 'r' AND ITEM FACILITY VALUE 'P' IN 3 GRADES

'r'	11 CF	21 MF	41 NF	51 EF	12 CS	22 MS	42 NS	52 ES
.01 - .10	1	1			2			8
.11 - .20	3	1	1	1	7	3		6
.21 - .30	10	2	1	6	10	14		7
.31 - .40	12	6	3	16	11	32	8	11
.41 - .50	28	27	4	35	13	24	18	20
.51 - .60	20	44	28	29	28	17	30	25
.61 - .70	22	17	41	14	22	9	33	20
.71 - .80	4	3	23		6	1	11	3
.81 - .90							1	
.91 - 1.00								

'P'	11 CF	21 MF	41 NF	51 EF	12 CS	22 MS	42 NS	52 ES
.01 - .10			1		1			1
.11 - .20	3	1	5		5		5	6
.21 - .30	7	1	2	1	4	1	19	3
.31 - .40	9	2	12	2	7	4	20	5
.41 - .50	18	2	15	6	8	13	21	5
.51 - .60	17	9	14	14	22	17	13	7
.61 - .70	14	9	11	17	15	21	9	10
.71 - .80	11	33	20	24	17	18	9	16
.81 - .90	11	36	13	24	16	24	4	26
.91 - 1.00	10	8	7	12	5	3		21

§ : These tables are based on aggregate data from the grades 8th, 9th and 10th. They exclude tests having open-end items.

Contd. / .....

'r'	13 CM	23 MM	43 NM	53 EM
.01 - .10				
.11 - .20			1	2
.21 - .30	1		3	8
.31 - .40	16	9	8	18
.41 - .50	26	23	17	36
.51 - .60	38	30	32	25
.61 - .70	16	24	27	8
.71 - .80	2	12	12	2
.81 - .90		2		
.91 - 1.00				

'P'	13 CM	23 MM	43 NM	53 EM
.01 - .10			1	
.11 - .20	1		4	
.21 - .30		1	5	1
.31 - .40	3	5	10	7
.41 - .50	12	9	7	9
.51 - .60	24	9	14	18
.61 - .70	24	15	16	18
.71 - .80	17	19	22	19
.81 - .90	17	33	13	20
.91 - 1.00	2	9	8	9

TABLE - X - b

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

CODE	111			112			113			114			115			116		
ER	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
0.20	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	2
0.30	1	1	0	2	2	1	0	0	0	0	0	1	2	2	2	1	2	1
0.40	0	0	1	1	0	4	0	0	0	2	2	2	1	1	2	3	0	3
0.50	0	2	0	4	6	4	0	0	0	3	6	4	6	3	3	1	6	2
0.60	3	3	5	3	1	1	1	2	2	4	1	3	0	2	2	0	1	2
0.70	6	4	4	0	1	0	6	6	5	1	1	0	0	0	0	5	0	0
0.80	0	0	0	0	0	0	3	2	3	0	0	0	0	0	0	0	0	0
0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITEMS	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

CODE	111			112			113			114			115			116		
	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.20	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0
0.30	0	0	1	2	0	1	2	0	0	1	0	0	1	1	1	2	0	1
0.40	0	0	0	0	2	1	4	2	0	2	1	1	2	0	0	0	1	1
0.50	2	0	0	1	0	0	4	1	5	2	3	2	3	3	4	1	1	0
0.60	1	0	2	1	1	1	0	5	2	4	1	4	2	4	2	0	0	1
0.70	3	3	1	3	2	1	0	2	2	0	4	2	0	0	1	1	0	0
0.80	1	2	2	2	3	2	0	0	1	0	0	0	0	0	0	4	1	1
0.90	2	2	2	0	1	3	0	0	0	1	0	0	1	1	1	2	2	1
1.00	0	2	2	1	1	1	0	0	0	0	1	1	0	0	0	0	4	5
ITEMS	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Contd./ .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

T CODE	211			212			213			214			215			216		
.DE ISER	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
- 0.10							1	1										
- 0.20		1							1									
- 0.30		1	1											1	1			
- 0.40	1			1		1				1	1		1	2	2		1	
- 0.50	2	2	4	2	8	3	0			4	6	7	6	3	5	1		
- 0.60	10	6	13	5	2	5	3	5	3	5	3	2	3	4	2	6	7	3
- 0.70	7	7	2	2	0	1	2		2			1				2	1	7
- 0.80		3														1	1	
- 0.90																		
- 1.00																		
AL ITEMS	20	20	20	10	10	10	6	6	6	10	10	10	10	10	10	10	10	10

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	211			212			213			214			215			216		
ADE AN	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
- 0.10																		
- 0.20									1									
- 0.30							1	1										
- 0.40				1			1		1									
- 0.50					1	1		1	1									
- 0.60		1		2	1	1	4	3	3				1		1			
- 0.70	6	2	2	1	1	2		1					1	1	1			
- 0.80	10	10	8	4	1	4				6	1	4	5	2	2	7	1	1
- 0.90	4	7	10	2	4	2				3	5	5	2	4	4	3	7	9
- 1.00					2					1	4	1	1	3	2		2	
AL ITEMS	20	20	20	10	10	10	6	6	6	10	10	10	10	10	10	10	10	10

Contd. / .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

ST CODE	411			412			413			414			415			416		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
BISER																		
0 - 0.10	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.20	0	1	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.30	0	1	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.40	2	0	2				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.50	0	0	1				0	0	0	0	2	0	0	2	0	0	0	0
1 - 0.60	3	2	1				0	2	3	0	4	0	3	6	8	1	0	1
1 - 0.70	1	2	2				4	7	7	2	4	5	7	2	2	2	2	1
1 - 0.80	0	0	0				6	1	0	8	0	5	0	0	0	2	3	3
1 - 0.90	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 1.00	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
TAL ITEMS	6	6	6	4	4	4	10	10	10	10	10	10	10	10	10	5	5	5

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	411			412			413			414			415			416		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
EAN																		
00 - 0.10	0	0	0				0	0	0	0	0	0	0	0	0	1	0	0
11 - 0.20	0	0	0				0	0	0	0	0	0	0	0	0	4	1	1
21 - 0.30	0	0	0				1	0	0	0	0	0	1	0	0	0	0	0
31 - 0.40	1	0	1				3	1	1	1	0	0	0	0	0	0	3	4
41 - 0.50	1	1	1				2	1	3	1	0	0	3	2	2	0	1	0
51 - 0.60	2	1	0				3	3	2	2	0	1	3	0	0	0	0	0
61 - 0.70	0	1	0				0	1	1	1	1	0	1	4	4	0	0	0
71 - 0.80	0	1	2				1	3	2	5	3	3	2	1	2	0	0	0
81 - 0.90	0	0	0				0	1	1	0	3	6	0	3	2	0	0	0
91 - 1.00	2	2	2				0	0	0	0	3	0	0	0	0	0	0	0
TAL ITEMS	6	6	6	4	4	4	10	10	10	10	10	10	10	10	10	5	5	5

Contd./ .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

ST CODE	121			122			123			124			125			126		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
BISER																		
0 - 0.10	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0			
1 - 0.20	7	4	9	0	0	0	0	0	0	0	0	0	0	0	0			
1 - 0.30	8	7	10	1	1	0	0	1	0	0	0	0	0	0	0			
1 - 0.40	10	12	2	1	1	0	2	0	2	0	0	1	0	0	1			
1 - 0.50	7	4	6	1	1	3	0	1	1	1	2	0	3	5	3			
1 - 0.60	13	6	8	7	4	5	3	2	5	4	0	7	7	5	4			
1 - 0.70	3	16	9	0	3	2	3	4	6	5	8	2	0	0	2			
1 - 0.80	0	1	2	0	0	0	7	6	1	0	0	0	0	0	0			
1 - 0.90	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0			
1 - 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
TAL ITEMS	50	50	50	10	10	10	15	15	15	10	10	10	10	10	10	2	2	2

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	121			122			123			124			125			126		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
AN																		
00 - 0.10	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0			
1 - 0.20	0	0	0	2	2	0	0	0	0	5	2	0	1	2	0			
1 - 0.30	0	1	0	1	0	1	0	0	0	1	3	2	1	1	0			
1 - 0.40	3	0	1	2	1	1	0	0	0	1	2	3	3	1	.2			
1 - 0.50	3	5	2	5	3	0	3	0	0	0	0	1	1	0	0			
1 - 0.60	16	15	1	0	3	5	6	3	0	2	1	1	2	5	2			
1 - 0.70	8	6	6	0	1	1	5	9	1	0	1	0	2	1	3			
1 - 0.80	10	12	15	0	0	2	0	2	4	0	0	1	0	0	2			
1 - 0.90	9	11	16	0	0	0	1	0	7	0	0	1	0	0	1			
1 - 1.00	1	0	9	0	0	0	0	1	3	0	0	0	0	0	0			
TAL ITEMS	50	50	50	10	10	10	15	15	15	10	10	10	10	10	10	2	2	2

Contd./ .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

T CODE	221			222			223			224			225			226		
DE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
ISER																		
0 - 0.10	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
1 - 0.20	0	0	1	0	0	0	0	0	0	3	1	3	0	0	0	0	0	0
1 - 0.30	0	3	5	0	5	6	0	0	0	7	8	10	0	0	0	0	0	1
1 - 0.40	9	6	8	15	8	9	2	5	4	10	8	7	1	3	1	1	1	1
1 - 0.50	7	5	8	8	6	7	7	4	6	0	2	0	5	1	7	1	0	1
1 - 0.60	9	8	6	1	5	2	1	1	0	0	0	0	4	5	2	5	2	3
1 - 0.70	5	7	2	0	0	0	0	0	0	0	0	0	0	1	0	3	6	4
1 - 0.80	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1 - 0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAL ITEMS	30	30	30	24	24	24	10	10	10	20	20	20	10	10	10	10	10	10

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	221			222			223			224			225			226		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
AN																		
0 - 0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.30	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1 - 0.40	1	0	0	0	0	0	3	6	2	0	1	0	0	0	0	0	0	0
1 - 0.50	4	5	1	0	0	0	1	1	1	9	9	8	0	0	0	0	0	0
1 - 0.60	8	10	3	2	2	0	4	2	4	4	3	5	3	1	1	0	1	0
1 - 0.70	7	6	7	6	5	3	2	0	2	5	6	5	2	6	1	2	1	0
1 - 0.80	5	5	8	1	7	7	0	0	1	1	0	1	4	3	4	2	3	3
1 - 0.90	5	3	9	14	10	11	0	0	0	1	1	1	1	0	3	5	5	6
1 - 1.00	0	0	2	1	0	3	0	0	0	0	0	0	0	0	1	1	0	1
TAL ITEMS	30	30	30	24	24	24	10	10	10	20	20	20	10	10	10	10	10	10

Contd. .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

ST CODE	421			422			423			424			425			426		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
BISER																		
) - 0.10	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.20	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.30	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.40	0	0	0				0	0	0	0	0	0	3	3	3	0	1	2
1 - 0.50	0	0	3				0	0	3	0	0	0	3	3	3	4	4	2
1 - 0.60	1	1	3				2	4	3	4	1	6	1	1	1	5	4	5
1 - 0.70	2	7	3				1	4	2	4	7	4	3	3	3	1	1	1
1 - 0.80	5	1	0				5	0	0	2	2	0	0	0	0	0	0	0
1 - 0.90	1	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 1.00	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
TAL ITEMS	9	9	9	6	6	6	8	8	8	10	10	10	10	10	10	10	10	10

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	421			422			423			424			425			426		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
AN																		
0 - 0.10	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.20	1	0	0				2	0	0	2	0	0	0	0	0	2	0	0
1 - 0.30	4	3	0				1	1	0	1	3	0	1	2	4	2	4	1
1 - 0.40	2	3	0				2	2	0	4	2	0	3	4	3	2	0	1
1 - 0.50	2	1	1				1	3	1	3	2	3	2	2	0	3	5	1
1 - 0.60	0	2	5				1	1	1	0	3	0	2	2	2	0	0	0
1 - 0.70	0	0	1				1	0	2	0	0	3	1	0	1	1	0	3
1 - 0.80	0	0	2				0	1	1	0	0	3	1	0	0	0	1	3
1 - 0.90	0	0	0				0	0	3	0	0	1	0	0	0	0	0	1
1 - 1.00	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
TAL ITEMS	9	9	9	6	6	6	8	8	8	10	10	10	10	10	10	10	10	10

Contd./ .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

T CODE / DE / ISER	521			522			523			524			525			526		
	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
- 0.10	8	9	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
- 0.20	5	6	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
- 0.30	7	5	5	1	1	0	0	0	1	0	0	0	1	0	0	0	2	3
- 0.40	4	4	1	1	2	1	2	0	2	0	1	4	2	0	2	4	5	5
- 0.50	1	3	0	1	0	0	2	5	6	4	6	6	6	7	7	6	5	5
- 0.60	5	4	4	3	3	5	5	7	2	8	8	6	6	11	6	4	3	1
- 0.70	2	1	4	12	9	11	3	0	1	7	5	4	5	2	4	1	0	0
- 0.80	0	0	0	2	5	3	0	0	0	1	0	0	0	0	0	0	0	0
- 0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AL ITEMS	32	32	32	20	20	20	12	12	12	20	20	20	20	20	20	15	15	15

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

IT CODE / IDE / IN	521			522			523			524			525			526		
	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
- 0.10	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 0.20	7	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 0.30	4	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
- 0.40	1	1	1	7	7	0	0	0	0	0	0	0	0	0	0	1	1	0
- 0.50	0	1	0	7	7	0	0	0	0	1	2	0	0	0	0	0	0	1
- 0.60	0	0	0	5	5	1	1	2	0	4	4	1	0	0	0	0	0	1
- 0.70	2	2	1	1	0	8	0	1	1	3	5	4	0	0	0	3	4	2
- 0.80	9	11	3	0	0	7	2	2	1	8	5	4	1	1	0	1	1	1
- 0.90	8	7	12	0	0	4	6	6	2	4	4	8	7	9	2	7	7	1
- 1.00	1	0	4	0	0	0	3	1	8	0	0	3	12	10	18	3	2	9
TAL ITEMS	32	32	32	20	20	20	12	12	12	20	20	20	20	20	20	15	15	15

Contd. /.....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

ST CODE	131			132			133			134			135			136		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
ISER																		
) - 0.10	0	0	0	0	0	0	0	0	0	0	0	0						
- 0.20	0	0	0	0	0	0	0	0	0	0	0	0						
- 0.30	1	0	0	1	0	0	0	0	0	0	0	0						
- 0.40	2	4	3	3	1	6	1	2	3	0	0	0						
- 0.50	2	3	7	6	8	6	3	2	3	0	0	1						
- 0.60	5	4	2	4	5	3	8	8	7	7	1	6						
- 0.70	2	1	0	1	1	0	3	3	2	3	6	3						
- 0.80	0	0	0	0	0	0	0	0	0	0	3	0						
- 0.90	0	0	0	0	0	0	0	0	0	0	0	0						
- 1.00	0	0	0	0	0	0	0	0	0	0	0	0						
TAL ITEMS	12	12	12	15	15	15	15	15	15	10	10	10	5	5	5	4	4	4

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

ST CODE	131			132			133			134			135			136		
ADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
AN																		
0 - 0.10	0	0	0	0	0	0	0	0	0	0	0	0						
1 - 0.20	1	0	1	0	0	0	0	0	0	0	0	0						
1 - 0.30	0	0	0	0	0	0	0	0	0	0	0	0						
1 - 0.40	1	1	2	0	0	0	0	0	0	0	0	0						
1 - 0.50	2	2	1	1	1	1	3	3	2	1	1	1						
1 - 0.60	3	2	3	2	4	4	6	6	6	1	1	0						
1 - 0.70	3	4	3	6	3	3	3	1	4	3	2	2						
1 - 0.80	1	1	1	4	3	4	2	4	2	0	3	2						
1 - 0.90	1	2	1	1	3	2	1	1	1	5	3	5						
1 - 1.00	0	0	0	1	1	1	0	0	0	0	0	0						
TAL ITEMS	12	12	12	15	15	15	15	15	15	10	10	10	5	5	5	4	4	4

Contd. / .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

CODE E SE	431 8	431 9	431 10	432 8	432 9	432 10	433 8	433 9	433 10	434 8	434 9	434 10	435 8	435 9	435 10	436 8	436 9	436 10
- 0.10	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
- 0.20	0	0	0				0	0	0	0	1	0	0	1	0	0	0	0
- 0.30	0	0	0				0	1	2	0	3	0	0	0	1	0	0	0
- 0.40	0	0	0				4	3	2	3	3	2	0	0	2	0	0	0
- 0.50	4	0	2				6	4	3	3	1	6	3	5	0	0	0	1
- 0.60	8	11	4				7	4	6	9	5	6	4	2	2	2	1	1
- 0.70	8	9	11				3	7	6	0	2	1	1	0	1	6	3	2
- 0.80	0	0	3				0	1	1	0	0	0	0	0	2	4	8	8
- 0.90	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
- 1.00	0	0	0				0	0	0	0	0	0	0	0	0	0	0	0
L ITEMS	20	20	20	4	4	4	20	20	20	15	15	15	8	8	8	12	12	12

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

CODE E	431 8	431 9	431 10	432 8	432 9	432 10	433 8	433 9	433 10	434 8	434 9	434 10	435 8	435 9	435 10	436 8	436 9	436 10
- 0.10	3	0	0				0	0	0	0	0	0	0	0	0	0	0	0
- 0.20	5	1	1				0	0	0	0	0	0	0	0	0	1	0	0
- 0.30	3	0	4				2	0	0	0	0	0	0	0	0	2	0	0
- 0.40	3	6	3				2	0	0	1	0	0	0	0	0	6	0	1
- 0.50	3	3	2				1	1	2	0	0	0	1	0	0	0	0	3
- 0.60	1	2	4				4	2	3	2	0	1	1	0	0	3	4	5
- 0.70	1	3	6				5	1	3	5	1	1	4	1	0	0	4	2
- 0.80	1	4	0				3	6	5	3	4	6	1	4	7	0	4	1
- 0.90	0	1	0				2	6	6	3	5	5	0	2	0	0	0	0
- 1.00	0	0	0				1	4	1	1	5	2	1	1	1	0	0	0
L ITEMS	20	20	20	4	4	4	20	20	20	15	15	15	8	8	8	12	12	12

Contd./ .....

Test-wise & grade-wise distribution of items
Along Point Biserial 'r' showing item-total correlation

T CODE	531			532			533			534			535			536		
DE / ISER	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
- 0.10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
- 0.20	0	0	0	0	0	0	2	0	1	1	0	1	1	0	1	0	0	0
- 0.30	0	1	0	0	2	0	5	2	1	4	2	2	0	3	1	0	0	0
- 0.40	1	0	2	5	1	4	5	5	7	5	4	5	2	0	0	3	2	2
- 0.50	8	6	4	4	4	2	7	12	9	5	7	4	5	3	5	10	4	5
- 0.60	3	6	9	1	1	4	6	6	7	2	2	4	1	6	3	2	5	6
- 0.70	3	2	0	0	2	0	0	0	0	1	3	2	2	1	2	0	4	2
- 0.80	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	0
- 0.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- 1.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AL ITEMS	15	15	15	10	10	10	25	25	25	18	18	18	14	14	14	15	15	15

Test-wise & Grade-wise distribution of items
Along mean item score showing item facility value

T CODE	531			532			533			534			535			536		
ADE / AN	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
0 - 0.10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 - 0.30	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0
1 - 0.40	0	0	0	0	0	0	3	0	3	1	0	0	4	2	4	2	0	0
1 - 0.50	2	0	0	0	0	0	3	2	3	1	0	0	4	2	3	2	1	3
1 - 0.60	2	1	1	2	1	1	5	2	5	4	0	4	4	6	6	1	3	4
1 - 0.70	3	3	4	3	0	3	3	5	2	4	4	3	2	1	0	5	3	4
1 - 0.80	1	2	3	3	5	3	4	3	5	2	5	4	0	2	0	3	6	[illegible]
1 - 0.90	6	4	5	2	2	3	6	7	6	4	5	6	0	0	0	0	1	[illegible]
1 - 1.00	1	5	2	0	2	0	0	6	1	2	4	1	0	0	0	1	1	[illegible]
TAL ITEMS	15	15	15	10	10	10	25	25	25	18	18	18	14	14	14	15	15	15

TABLE - X -c

TESTWISE AND GRADEWISE ITEM STATISTICS FROM TESTS OF DIVERGENT THINKING :-

Mean Item Score showing Item Facility Value

ST CODE	312			322			323			325			326		
GRADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
INT SERIAL															
1	3.82	4.73	4.93	2.47	1.79	2.51	3.71	3.86	4.52	1.51	1.67	1.94	2.14	2.28	2.96
2	3.14	3.88	4.09	2.90	2.04	3.12	4.17	4.42	5.30	1.82	1.98	2.21	1.91	2.04	2.66
3	0.00	0.00	0.00	2.05	1.79	2.95	0.00	0.00	0.00	0.95	0.96	1.34	0.00	0.00	0.00
TOTAL ITEMS	2	2	2	3	3	3	2	2	2	3	3	3	2	2	2

ST CODE	332			333			335			336		
GRADE	8	9	10	8	9	10	8	9	10	8	9	10
INT SERIAL												
1	2.40	3.27	3.22	1.96	2.75	2.29	1.18	1.81	2.08	2.69	3.97	3.78
2	2.21	3.05	2.92	2.73	3.58	3.47	1.22	1.91	1.93	2.97	4.22	4.40
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL ITEMS	2	2	2	2	2	2	2	2	2	2	2	2

ingle item tests having 311, 313, 314, 315, 316, 321 and 324. These tests do not
ve item-statistics.]

TESTWISE AND GRADEWISE ITEM STATISTICS FROM TESTS OF DIVERGENT THINKING :-

Product moment showing Item-Total Correlations

ST CODE	312			322			323			325			325		
GRADE	8	9	10	8	9	10	8	9	10	8	9	10	8	9	10
AN															
1	0.85	0.81	0.84	0.85	0.88	0.85	0.91	0.91	0.88	0.75	0.77	0.74	0.86	0.88	0.86
2	0.89	0.83	0.84	0.92	0.92	0.92	0.92	0.93	0.88	0.78	0.83	0.75	0.87	0.88	0.86
3	0.00	0.00	0.00	0.85	0.88	0.86	0.00	0.00	0.00	0.67	0.63	0.68	0.00	0.00	0.00
TOTAL ITEMS	2	2	2	3	3	3	2	2	2	3	3	3	2	2	2

ST CODE	332			333			335			336		
GRADE	8	9	10	8	9	10	8	9	10	8	9	10
AN												
1	0.85	0.84	0.81	0.86	0.89	0.84	0.86	0.87	0.86	0.92	0.91	0.89
2	0.86	0.84	0.78	0.92	0.94	0.91	0.87	0.90	0.85	0.92	0.90	0.90
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL ITEMS	2	2	2	2	2	2	2	2	2	2	2	2

TABLE - X - d

ITEM STATISTICS FROM OPEN-END TESTS OTHER THAN TESTS OF DIVERGENT THINKING

4 1 2

Item Total Correlation

	8	9	10
1	0.67	0.59	0.61
2	0.51	0.46	0.59
3	0.65	0.57	0.65
4	0.72	0.61	0.73

Mean Item Score

	8	9	10
1	2.04	2.33	2.36
2	1.25	1.38	1.48
3	1.32	1.53	1.64
4	1.27	1.66	1.61

1 2 6

Item Total Correlation

	8	9	10
1	0.85	0.81	0.77
2	0.84	0.85	0.87

Mean Item Score

	8	9	10
1	1.77	2.24	2.49
2	1.23	1.68	1.80

4 2 2

Item Total Correlation

	8	9	10
1	.65	.67	.51
2	.60	.61	.39
3	.70	.60	.43
4	.63	.57	.64
5	.59	.59	.63
6	.66	.64	.66

Mean Item Score

	8	9	10
1	0.87	0.99	1.49
2	1.01	1.19	1.27
3	1.13	1.30	1.61
4	0.39	0.62	1.13
5	0.30	0.41	0.80
6	0.53	0.61	1.09

1 3 5

Item Total Correlation

	8	9	10
1	.65	.68	.57
2	.73	.77	.61
3	.75	.80	.67
4	.76	.77	.73
5	.69	.78	.66

Mean Item Score

	8	9	10
1	1.77	1.75	1.82
2	2.49	2.42	2.69
3	1.82	1.97	2.03
4	1.98	2.11	2.28
5	1.77	1.74	1.84

1 3 6

Item Total Correlation

	8	9	10
1	.86	.83	.75
2	.86	.83	.79
3	.84	.83	.79
4	.84	.85	.78

Mean Item Score

	8	9	10
1	1.93	2.07	2.33
2	1.73	1.87	1.92
3	1.65	1.65	1.85
4	1.90	2.02	2.26

4 3 2

Item Total Correlation

	8	9	10
1	.74	.80	.79
2	.61	.68	.67
3	.78	.76	.79
4	.66	.80	.79

Mean Item Score

	8	9	10
1	1.75	2.28	1.69
2	1.17	1.66	1.42
3	1.67	2.50	2.08

TABLE - XI

RELIABILITY ESTIMATES : COEFFICIENTS OF INTERNAL CONSISTENCY

FIGURAL CONTENT

Operations / Products	C		M		D		N		E	
	A	B	A	B	A	B	A	B	A	B
U	10	.70	20	.77	1	-	6	.69+	15	.77
C	10	.99	10	.99	2	.84§	4	.61§	10	.68
R	10	.86+	6	.80	1	-	10	.86	14	.81
S	10	.63	10	.81	1	-	10	.98	15	.78
T	10	.60	10	.80	1	-	10	.67	10	.98
I	10	.78	10	.79	1	-	5	.72+	16	.78

SYMBOLIC CONTENT

U	50	.90+	30	.97	1	-	9	.83+	32	.84
C	10	.71+	24	.83	3	.88§	6	.60§	20	.86
R	15	.67	10	.58	2	.90§	8	.77+	12	.81
S	10	.70	20	.77	1	-	10	.77+	20	.76
T	10	.86	10	.99	3	.73§	10	-	20	.85
I	2	.83§	10	.78	2	.87§	10	.83	15	.83

SEMANTIC CONTENT

U	12	.67	20	.98	1	-	20	.79+	15	.78
C	15	.75	20	.80	2	.83§	4	.74§	10	.78
R	15	.67	12	.57	2	.89§	20	.99	25	.79
S	10	.98	14	.68	1	-	15	.80	18	.80
T	5	.71§	10	.81	2	.87§	8	.97+	14	.59
I	4	.82§	12	.80	2	.91§	12	.82	15	.98

A = Number of Items

B = Reliability coefficients

+ = Rational equivalence KR - 20

§ = Average item-test correlation

All other coefficients show Split-half reliability by SB formula.

TABLE - XII - a

TEST-RETEST CORRELATIONS

F I G U R A L

	11	21	31	41	51	AVERAGE
	-0.0600	0.2400	0.5400	0.5800	0.4000	0.3400
	0.1200	0.3100	0.3900	0.2900	0.5700	0.3360
	0.6800	0.2300	0.6900	0.6400	0.5100	0.5500
	0.4900	0.4200	0.5500	0.5700	0.6700	0.5400
	0.3900	0.4100	0.44	0.5600	0.5900	0.4780
	0.3700	0.4600	0.3400	0.7200	0.6700	0.5120
AVERAGE	0.3317	0.3450	0.4917	0.5600	0.5683	

S Y M B O L I C

	12	22	32	42	52	AVERAGE
	0.6900	0.6200	0.4100	0.7000	0.6100	0.6060
	0.4500	0.3300	0.5800	0.4600	0.8000	0.5240
	0.6100	0.2400	0.5600	0.3600	0.5500	0.4640
	0.6500	0.0600	0.3500	0.5900	0.3200	0.3940
	0.7300	0.4100	0.3200	0.4600	0.4000	0.4640
	0.2200	0.2400	0.6300	0.6200	0.5800	0.4580
AVERAGE	0.5583	0.3167	0.4750	0.5317	0.5433	

S E M A N T I C

	13	23	33	43	53	AVERAGE
	0.5900	0.5100	0.6000	0.9000	0.5500	0.6300
	0.6000	0.6100	0.6300	0.7100	0.4800	0.6060
	0.7600	0.7600	0.7600	0.8700	0.7300	0.7760
	0.6600	0.5300	0.4900	0.8700	0.7100	0.6520
	0.4500	0.2000	0.4200	0.4300	0.3200	0.3640
	0.6300	0.1800	0.8000	0.7100	0.7100	0.6060
AVERAGE	0.6150	0.4650	0.6167	0.7483	0.5833	

COMBINED

OPERATIONS / PRODUCTS	1	2	3	4	5	AVERAGE
1	0.4067	0.4567	0.5167	0.7267	0.5200	0.5253
2	0.3900	0.4167	0.5333	0.4867	0.6167	0.4886
3	0.6833	0.4100	0.6700	0.6233	0.5967	0.5966
4	0.6000	0.3367	0.4633	0.6767	0.5667	0.5286
5	0.5233	0.3400	0.3933	0.4833	0.4367	0.4353
6	0.4067	0.2933	0.5900	0.6833	0.6533	0.5253
AVERAGE	0.5017	0.3756	0.5278	0.6133	0.5650	

HORIZONTAL

CONTENTS / PRODUCTS	FIGURAL	SYMBOLIC	SEMANTIC	AVERAGE
1	0.3400	0.6060	0.6300	0.5253
2	0.3360	0.5240	0.6060	0.4887
3	0.5500	0.4640	0.7760	0.5967
4	0.5400	0.3940	0.6520	0.5287
5	0.4780	0.4640	0.3640	0.4353
6	0.5120	0.4580	0.6060	0.5253
AVERAGE	0.4593	0.4850	0,6057	

VERTICAL

OPERATIONS / CONTENTS	1	2	3	4	5	AVERAGE
FIGURAL	0.3317	0.3450	0.4917	0.5600	0.5683	0.4593
SYMBOLIC	0.5583	0.3167	0.4750	0.5317	0.5433	0.4850
SEMANTIC	0.6150	0.4650	0.6167	0.7483	0.5833	0.6057
AVERAGE	0.5017	0.3756	0.5278	0.6133	0.5650	

TABLE - XII - b

Internal consistency of the Tests showing Poor Test-Retest Correlations

Test names in Triagram Symbols		Test-Retest Correlations	SB Coefficients of Internal Consistency	Number of Items
111	CFU	.06	.70	10
112	CFC	.12	.99	10
126	CSI	.22	.83 (Average item-total correlation)	2
211	MFU	.24	.77	20
213.	MFR	.23	.83	6
223	MSR	.24	.58	10
224	MSS	.06	.77	20
226	MSI	.24	.78	10
235	MMT	.20	.81	10
236	MMI	.18	.80	12

TABLE - XIII

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

ZONE, AND GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	ZONE	GRADE	MEAN	SD	OBSN	ITEMS	F §
121	URBAN (1)	8	32.40	9.41	98	50	34.83
		9	29.57	12.21	145		
		10	38.92	8.19	106		
	RURAL (2)	8	30.33	7.60	190	50	34.83
		9	34.36	7.78	98		
		10	34.60	8.38	37		
	METROPO-LITAN (3)	8	37.33	7.09	111	50	34.83
		9	39.00	5.93	101		
		10	42.77	4.65	100		
122	URBAN (1)	8	3.92	2.21	99	10	29.19
		9	4.25	2.59	147		
		10	5.51	2.45	106		
	RURAL (2)	8	2.88	1.86	189	10	29.19
		9	3.59	2.11	98		
		10	4.00	2.39	87		
	METROPO-LITAN (3)	8	4.96	2.54	111	10	29.19
		9	5.51	2.48	101		
		10	6.51	2.48	99		
123	URBAN (1)	8	9.37	4.49	99	15	41.45
		9	9.63	5.02	147		
		10	12.65	2.41	106		
	RURAL (2)	8	6.68	4.38	189	15	41.45
		9	9.33	3.96	98		
		10	11.14	3.92	87		
	METROPO-LITAN (3)	8	12.02	3.21	111	15	41.45
		9	11.67	4.14	101		
		10	13.88	2.05	99		

§ : Since most of the F ratios are significant at .01 level, only non-significance or .05 level, are mentioned.

Contd./......

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

ZONE, AND GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	ZONE	GRADE	MEAN	SD	OBSN	ITEMS	F
124	URBAN	8	2.76	2.15	99	10	37.48
	(1)	9	2.38	2.52	146		
		10	4.72	2.40	106		
	RURAL	8	1.38	1.85	191	10	37.48
	(2)	9	1.95	1.30	98		
		10	3.13	2.37	86		
	METROPO-LITAN (3)	8	3.94	2.34	111	10	37.48
		9	4.35	2.91	101		
		10	5.01	2.41	100		
125	URBAN	8	4.31	2.11	99	10	28.88
	(1)	9	4.03	2.51	146		
		10	5.64	2.40	106		
	RURAL	8	3.49	2.24	191	10	28.88
	(2)	9	3.83	2.03	98		
		10	.20	2.49	87		
	METROPO-LITAN (3)	8	5.55	2.57	111	10	28.88
		9	5.63	2.22	101		
		10	7.04	2.29	100		
126	URBAN	8	3.54	2.39	98	2	23.24
	(1)	9	3.67	2.19	145		
		10	4.55	1.83	105		
	RURAL	8	2.11	2.18	190	2	23.24
	(2)	9	3.74	2.14	98		
		10	3.23	2.29	87		
	METROPO-LITAN (3)	8	4.06	2.07	111	2	23.24
		9	4.50	1.94	101		
		10	4.95	1.59	100		

TABLE - XIV

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
111	8	5.99	2.59	410	10	27.75
	9	7.23	2.17	299		
	10	7.05	2.35	259		
112	8	6.07	1.92	410	10	13.24
	9	6.60	1.99	299		
	10	6.79	1.72	259		
113	8	3.69	3.24	411	10	29.38
	9	5.26	3.27	300		
	10	5.37	3.27	259		
114	8	4.91	2.43	411	10	14.49
	9	5.74	2.17	300		
	10	5.66	2.12	259		
115	8	4.35	1.80	409	10	6.99
	9	4.78	1.70	297		
	10	4.80	1.90	258		
116	8	6.29	2.13	409	10	61.10
	9	7.34	1.47	297		
	10	7.71	1.28	258		

Contd./......

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
211	8	14.99	4.92	287	20	3.26
	9	15.59	4.74	199		Significant at .05 level
	10	15.91	4.33	385		
212	8	6.82	2.42	287	10	6.64
	9	7.58	2.01	199		
	10	7.24	2.34	386		
213	8	2.69	1.57	287	6	5.35
	9	3.10	1.47	201		
	10	2.69	1.59	386		
214	8	8.09	2.00	287	10	7.27
	9	8.73	1.56	201		
	10	8.38	1.80	384		
215	8	7.70	1.99	287	10	7.72
	9	8.33	1.68	202		
	10	8.10	1.75	385		
216	8	7.97	2.32	287	10	5.89
	9	8.65	1.96	202		
	10	8.41	2.35	385		

Contd./ ......

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
311	8	8.09	4.33	326	1	21.14
	9	9.05	3.93	399		
	10	10.26	3.79	264		
312	8	6.96	3.06	325	2	46.16
	9	8.62	2.75	399		
	10	9.02	2.71	265		
313	8	4.02	2.69	325	1	70.15
	9	5.08	2.66	399		
	10	6.82	3.34	265		
314	8	4.81	2.73	325	1	31.77
	9	5.48	2.48	399		
	10	6.51	2.53	264		
315	8	1.13	1.25	326	1	1.22 NS
	9	1.14	1.07	398		
	10	1.28	1.32	265		
316	8	9.08	3.86	326	1	44.72
	9	11.73	3.72	400		
	10	11.24	4.17	264		

Contd./ .....-

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
411	8	3.82	1.41	293	6	22.65
	9	4.48	1.23	432		
	10	4.23	1.26	279		
412	8	5.88	2.86	292	4	17.07
	9	6.89	2.37	432		
	10	7.08	2.99	279		
413	8	4.44	3.40	291	10	35.68
	9	6.35	2.88	434		
	10	5.90	2.84	280		
414	8	6.43	3.45	291	10	41.99
	9	8.29	2.15	434		
	10	7.96	2.78	280		
415	8	5.56	2.98	292	10	25.69
	9	6.89	2.43	432		
	10	6.87	2.62	280		
416	8	0.62	1.10	292	10	38.30
	9	1.51	1.55	432		
	10	1.47	1.56	280		

Contd./ ....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
511	8	9.64	3.10	412	15	38.70
	9	11.22	2.51	290		
	10	11.27	3.02	384		
512	8	5.98	2.55	413	10	21.54
	9	6.87	2.35	291		
	10	7.10	2.63	384		
513	8	10.04	2.34	411	14	19.38
	9	10.78	2.25	289		
	10	11.05	2.45	382		
514	8	10.00	3.07	411	15	19.51
	9	10.99	2.88	289		
	10	11.21	2.67	381		
515	8	6.49	2.71	413	10	20.49
	9	7.39	2.17	292		
	10	7.48	2.15	381		
516	8	11.24	3.74	412	16	27.30
	9	12.61	3.23	292		
	10	12.96	3.27	381		

Contd. / .....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
121	8	32.92	8.57	399	50	42.17
	9	33.70	10.30	344		
	10	38.95	7.95	293		
122	8	3.72	2.32	399	10	38.42
	9	4.43	2.54	346		
	10	5.40	2.64	292		
123	8	8.83	4.70	399	15	67.22
	9	10.14	4.60	346		
	10	12.62	3.04	292		
124	8	2.43	2.34	401	10	50.67
	9	3.04	2.64	345		
	10	4.35	2.53	292		
125	8	4.26	2.47	401	10	47.30
	9	4.44	2.43	345		
	10	5.99	2.51	293		
126	8	3.00	2.38	399	2	32.54
	9	3.94	2.12	344		
	10	4.29	2.04	292		

Contd. / .....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
221	8	19.58	6.70	286	30	27.20
	9	18.32	7.18	277		
	10	22.27	5.34	279		
222	8	18.52	3.84	286	24	13.38
	9	18.10	4.14	277		
	10	19.71	3.43	280		
223	8	5.10	2.19	288	10	22.73
	9	4.18	2.06	277		
	10	5.33	2.13	280		
224	8	11.20	2.87	288	20	2.62
	9	10.88	3.00	277		N. S.
	10	11.43	2.62	280		
225	8	6.94	2.26	288	10	19.78
	9	6.71	2.37	277		
	10	7.81	1.83	280		
226	8	8.08	2.29	287	10	6.41
	9	7.71	2.51	277		
	10	8.40	1.98	280		

Contd. /.....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
321	8	17.37	9.25	302	1	0.71 NS
	9	17.57	8.63	415		
	10	18.10	7.58	383		
322	8	7.42	5.15	301	3	37.14
	9	5.62	4.62	415		
	10	8.57	4.92	383		
323	8	7.88	3.68	302	2	28.34
	9	8.23	3.70	414		
	10	9.82	3.58	383		
324	8	2.36	1.81	301	1	6.24
	9	2.44	2.17	414		
	10	2.88	2.32	382		
325	8	4.28	3.57	301	3	7.84
	9	4.61	4.33	415		
	10	5.50	4.63	383		
326	8	4.05	2.86	302	2	26.09
	9	4.32	3.32	415		
	10	5.62	3.12	383		

Contd./——

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
421	8	2.85	3.00	285	9	82.28
	9	3.34	2.82	301		
	10	5.39	2.49	382		
422	8	4.23	3.36	284	6	85.50
	9	5.12	3.39	301		
	10	7.39	3.04	382		
423	8	2.96	2.54	285	8	130.04
	9	3.62	2.35	301		
	10	5.65	1.97	381		
424	8	3.52	2.94	285	10	107.60
	9	4.19	3.16	301		
	10	6.65	2.75	381		
425	8	4.61	2.83	285	1	65.18
	9	6.12	2.96	301		
	10	7.06	2.49	382		
426	8	3.55	2.47	285	10	129.25
	9	3.98	2.41	301		
	10	6.29	2.35	382		

Contd./ ——

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
521	8	18.40	3.43	388	32	0.69 NS
	9	18.60	3.18	288		
	10	18.69	3.11	290		
522	8	9.05	5.91	388	20	93.97
	9	8.73	6.00	290		
	10	14.50	5.49	290		
523	8	9.81	2.43	390	12	20.38
	9	9.40	2.48	291		
	10	10.58	1.76	290		
524	8	14.32	5.13	390	20	19.62
	9	13.70	4.87	291		
	10	16.06	4.00	290		
525	8	17.97	3.23	389	20	6.40
	9	17.86	3.32	291		
	10	18.69	2.58	290		
526	8	11.90	2.54	389	15	8.85
	9	11.75	2.28	291		
	10	12.50	1.91	290		

Contd./ .....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
131	8	6.69	2.80	307	12	12.33
	9	7.46	2.69	387		
	10	6.58	2.49	389		
132	8	10.27	3.02	307	15	0.57 NS
	9	10.24	3.26	387		
	10	10.04	2.93	389		
133	8	8.93	3.97	305	15	1.12 NS
	9	9.35	3.73	387		
	10	9.06	3.74	391		
134	8	7.21	2.60	305	10	1.24 NS
	9	7.29	2.96	383		
	10	7.52	2.45	391		
135	8	9.83	2.64	306	5	8.49
	9	9.99	3.33	364		
	10	10.65	2.63	415		
136	8	7.22	4.08	306	4	7.85
	9	7.60	4.10	364		
	10	8.36	3.76	416		

Contd./ .....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
231	8	11.54	4.66	286	20	35.42
	9	14.48	4.55	497		
	10	13.44	4.92	403		
232	8	14.48	4.42	286	20	32.59
	9	16.86	3.59	498		
	10	16.05	4.09	403		
233	8	5.26	2.84	286	12	28.32
	9	6.98	2.97	498		
	10	6.37	3.36	403		
234	8	8.06	3.84	286	14	29.65
	9	10.25	3.57	497		
	10	9.19	4.23	403		
235	8	8.71	2.35	283	10	2.38
	9	9.05	2.18	500		N. S.
	10	8.80	2.30	402		
236	8	9.90	2.85	283	12	9.87
	9	10.74	2.55	499		
	10	10.14	2.94	402		

Contd./ ......

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
331	8	15.93	5.15	393	1	46.58
	9	19.92	6.64	395		
	10	18.06	5.47	339		
332	8	4.62	2.76	393	2	46.96
	9	6.32	2.74	395		
	10	6.14	2.31	339		
333	8	4.69	3.40	392	2	21.30
	9	6.33	3.78	395		
	10	5.76	3.51	339		
334	8	3.10	2.13	393	1	25.18
	9	3.86	2.45	394		
	10	4.28	2.26	338		
335	8	2.39	2.45	393	2	33.99
	9	3.71	3.23	395		
	10	4.01	2.88	339		
336	8	5.66	4.06	393	2	45.17
	9	8.18	4.39	395		
	10	8.17	4.24	338		

Contd./......

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
431	8	6.05	4.58	402	20	78.16
	9	10.69	5.59	397		
	10	9.24	5.96	285		
432	8	5.37	3.46	403	4	60.95
	9	8.24	3.62	395		
	10	6.70	4.02	286		
433	8	12.25	4.61	404	20	56.58
	9	15.63	4.38	399		
	10	14.39	4.68	286		
434	8	10.52	3.31	403	15	57.24
	9	12.71	2.43	399		
	10	11.92	2.99	286		
435	8	5.28	1.98	403	8	42.26
	9	6.36	1.49	399		
	10	6.36	2.17	286		
436	8	[illegible]	3.76	402	12	73.64
	9	7.97	4.09	399		
	10	6.64	4.16	286		
437 §	8	14.44	3.97	401	8	44.73
	9	17.09	3.75	399		
	10	16.05	4.32	284		

§ : This test was deleted and '431' was retained for the factor NMU.

Contd../ .....

REPRESENTATIVE RESULTS FROM NORMATIVE STUDY

GRADE-WISE MEANS AND STANDARD DEVIATIONS OF TEST SCORES

TEST NO.	GRADE	MEAN	SD	OBSN	ITEMS	F
531	8	10.37	3.34	278	15	22.45
	9	12.33	3.66	400		
	10	11.60	3.00	345		
532	8	7.08	1.86	280	10	15.13
	9	7.88	1.79	400		
	10	7.49	1.96	345		
533	8	15.81	4.34	280	25	34.30
	9	19.07	4.32	400		
	10	16.31	4.86	344		
534	8	12.31	3.11	280	18	33.55
	9	14.36	3.21	400		
	10	13.25	3.40	344		
535	8	6.68	3.22	280	14	11.41
	9	7.59	3.21	399		
	10	6.50	3.54	345		
536	8	9.02	3.09	280	15	20.28
	9	10.57	3.53	399		
	10	9.34	3.55	345		

TABLE : XIV - b

The number of comparisons showing
urban-rural or urban-metropolitan differences, not significant

	C	M	D	N	E	TOTAL
Figural	7	19	12	10	13	61
Symbolic	7	19	16	5	20	67
Semantic	13	16	10	14	7	60
TOTAL	27	54	38	29	40	188

TABLE : XV - a

Factor Analysis : Plan of Test Administration

Day	1	2	3	4	5	6	7	8	9
Test	ES 52	MM 23	DF 31	HOLIDAY	MS 22	READING	NM 43	CS 12	SPM
REST §									
Test	CF 11	NS 42	CM 13	HOLIDAY	NF 41	EF 51	MF 21	DM 33	Scholastic Intelligence Scale
REST §									
					EM 53	DS 32	FILM SHOW #		SCIENCE LECTURE

TABLE - XV - b

FACTOR ANALYSIS

Hypotheses in details and 14 overlapping combinations of 110 variables to be factorized

FA - 1 : No. of variables 49

Variables : 19 common + all 30 tests of Figural Content (V1 to V49)

Hypothesis : 30 tests of Figural Content will yield 5 common factors as :-

CF - in 6 product tests of figural cognition,CFU to CFI, (V20 to V25)

MF - in 6 product tests of figural memory,MFU to MFI, (V26 to V31)

DF - in 6 product tests of figural divergent thinking,DFU to DFI (V32 to V37)

NF - in 6 product tests of figural convergent thinking,NFU to NFI (V38 to V43)

EF - in 6 product tests of figural evaluation, EFU to EFI, (V44 to V49).

FA - 2 : No. of variables 49

Variables : 19 common + all 30 tests of Symbolic Content (V1 to V19 + V50 to V79)

Hypothesis : 30 tests of Symbolic Content will yield 5 common factors as :-

CS - in 6 product tests of symbolic cognition, CSU to CSI,(V50 to V55)

MS - in 6 product tests of symbolic memory, MSU to MSI, (V56 to V61)

DS - in 6 product tests of symbolic divergent thinking, DSU to DSI, (V62 to V67)

NS - in 6 product tests of symbolic convergent thinking, NSU to NSI, (V68 to V73)

ES - in 6 product tests of symbolic evaluation, ESU to ESI, (V74 to V79).

FA - 3 : No. of variables 49 + 1

Variables : 19 common + all 30 +(1) tests of Semantic Content (V1 to V19 + V80 to V110)

Hypothesis : 30 +(1) tests of Semantic Content will yield 5 common factors as :-

CM - in 6 product tests of semantic cognition, CMU to CMI, (V80 to V85)

MM - in 6 product tests of semantic memory, MMU to MMI, (V86 to V91)

DM - in 6 product tests of semantic divergent thinking, DMU to DMI, (V92 to V97)

NM - in 7 product tests of semantic convergent thinking, NMU to NMI, (V98 to V104)

EM - in 6 product tests of semantic evaluation, EMU to EMI, (V105 to V110).

FA - 4 : No. of variables 37

Variables : 19 common + 18 tests of cognition, i.e.
(V1 to V19 + V20 to V25 + V50 to V56 + V80 to V85)

Hypothesis : 18 tests of cognition will yield 3 common factors as :-

CF - in 6 product tests of figural cognition, CFU to CFI, (V20 to V25)

CS - in 6 product tests of symbolic cognition, CSU to CSI, (V50 to V55)

CM - in 6 product tests of semantic cognition, CMU to CMI, (V80 to V85).

Contd./-....

FA - 5 : No. of variables 37

Variables : 19 Common + 18 tests of memory, i.e.
(V1 to V19 + V26 to V31 + V56 to V61 + V86 to V91)

Hypothesis : 18 tests of memory will yield 3 common factors as :-

MF - in 6 product tests of figural memory, MFU to MFI, (V26 to V31)

MS - in 6 product tests of symbolic memory, MSU to MSI, (V56 to V61)

MM - in 6 product tests of semantic memory, MMU to MMI, (V86 to V91).

FA - 6 : No. of variables 37

Variables : 19 common + 18 tests of divergent thinking, i.e.
(V1 to V19 + V32 to V37 + V62 to V67 + V92 to V97)

Hypothesis : 18 tests of divergent thinking will yield 3 common factors as :-

DF - in 6 product tests of figural divergent thinking, DFU to DFI, (V32 to V37)

DS - in 6 product tests of symbolic divergent thinking, DSU to DSI, (V62 to V67)

DM - in 6 product tests of semantic divergent thinking, DMU to DMI, (V92 to V97).

FA - 7 : No. of variables 38

Variables : 19 common + 19 tests of convergent thinking, i.e.
(V1 to V19 + V38 to V43 + V68 to V73 + V98 to V104)

Hypothesis : 19 tests of convergent thinking will yield 3 common factors as :-

NF - in 6 product tests of figural convergent thinking, NFU to NFI, (V38 to V43)

NS - in 6 product tests of symbolic convergent thinking, NSU to NSI, (V68 to V73)

NM - in 7 product tests of semantic convergent thinking, NMU to NMI, (V98 to V104).

FA - 8 : No. of variables 37

Variables : 19 common + 18 tests of evaluation, i.e.
(V1 to V19 + V44 to V49 + V74 to V79 + V105 to V110)

Hypothesis : 18 tests of evaluation will yield 3 common factors as :-

EF - in 6 product tests of figural evaluation, EFU to EFI, (V44 to V49)

ES - in 6 product tests of symbolic evaluation, ESU to ESI, (V74 to V79)

EM - in 6 product tests of semantic evaluation, EMU to EMI, (V105 to V110).

FA - 9 : No. of variables 35

Variables : 19 common + all 15 +(1) tests of Units
(V1 to V19, V20, V26, V32, V38, V44, V50, V56, V62, V68, V74, V80, V86, V92, V98, V104, V105)

Hypothesis : 16 tests of UnitsCFU (V20), MFU (V26), DFU (V32), NFU (V38), EFU (V44), CSU (V50), MSU (V56), DSU (V62), NSU (V68), ESU (V74), CMU (V80), MMU (V86), DMU (V92), NMU-I (V98), NMU-II (V104), EMU (V105) will not yield any common factor.

FA - 10 : No. of variables 34

Variables : 19 common + all 15 tests of Classes
(V1 to V19, V21, V27, V33, V39, V45, V51, V57, V63, V69, V75, V81, V87, V93, V99, V106)
Hypothesis : 15 tests of Classes CFC (V21), MFC (V27), DFC (V33), NFC (V39), EFC (V45), CSC (V51), MSC (V57), DSC (V63), NSC (V69), ESC (V75), CMC (V81), MMC (V87), DMC (V93), NMC (V99), EMC (V106), will not yield any common factor.

FA - 11 : No. of variables 34

Variables : 19 common + all 15 tests of Relations
(V1 to V19, V22, V28, V34, V40, V46, V52, V58, V64, V70, V76, V82, V88, V94, V100, V107)
Hypothesis : 15 tests of Relations CFR (V22), MFR (V28), DFR (V34), NFR (V40), EFR (V46), CSR (V52), MSR (V58), DSR (V64), NSR (V70), ESR (V76), CMR (V82), MMR (V88), DMR (V94),NMR (V100), EMR (V107) will not yield any common factor.

FA - 12 : No. of variables 34

Variables : 19 common + all 15 tests of Systems
(V1 to V19, V23, V29, V35, V41, V47, V53, V59, V65, V71, V77, V83, V89, V95, V101, V108)
Hypothesis : 15 tests of Systems CFS (V23), MFS (V29), DFS (V35), NFS (V41), EFS (V47), CSS (V53), MSS (V59), DSS (V65), NSS (V71), ESS (V77), CMS (V83), MMS (V89), DMS (V95), NMS (V101), EMS (V108) will not yield any common factor.

FA - 13 : No. of variables 34

Variables : 19 common + all 15 tests of Transformations
(V1 to V19, V24, V30, V36, V42, V48, V54, V60, V66, V72, V78, V84, V90, V96, V102, V109)

Hypothesis : 15 tests of Transformations CFT (V24), MFT (V30), DFT (V36), NFT (V42), EFT (V48), CST (V54), MST (V60), DST (V66), NST (V72), EST (V78), CMT (V84), MMT (V90), DMT (V96), NMT (V102), EMT (V109) will not yield any common factor.

FA - 14 : No. of variables 34

Variables : 19 common + all 15 tests of Implications
(V1 to V19, V25, V31, V37, V43, V49, V55, V61, V67, V73, V79, V85, V91, V97, V103, V110)
Hypothesis : 15 tests of Implications CFI (V25), MFI (V31), DFI (V37), NFI (V43), EFI (V49), CSI (V55), MSI (V61), DSI (V67), NSI (V73), ESI (V79), CMI (V85), MMI (V91), DMI (V97), NMI (V103), EMI (V110) will not yield any common factor.

TABLE – XVI – a

CORRELATIONAL STUDY : PA-1 : CORRELATION MATRIX – FIGURAL TESTS

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	SPM	RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.34
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CFU	-.22	0.02	0.05	0.10	0.14	0.13	0.10	0.09	0.20	0.23	0.03	0.06	0.10	0.21	0.19	0.15	0.19	0.21	0.22
21	CFC	-.18	0.08	0.24	0.24	0.20	0.20	0.07	0.02	0.22	0.13	0.07	0.10	0.05	0.29	0.27	0.29	0.32	0.29	0.33
22	CFR	-.27	0.27	0.37	0.33	0.35	0.40	0.28	0.18	0.29	0.18	0.20	0.30	0.27	0.38	0.41	0.41	0.43	0.41	0.46
23	CFS	-.13	-.04	0.07	0.13	0.15	0.20	0.14	0.00	0.12	0.07	0.03	0.15	0.03	0.22	0.24	0.21	0.29	0.23	0.26
24	CFT	-.21	0.04	0.28	0.12	0.19	0.20	0.17	0.13	0.18	0.11	0.25	0.17	0.12	0.14	0.30	0.15	0.17	0.22	0.21
25	CFI	0.00	0.07	0.00	0.00	0.04	0.06	-.01	0.00	0.11	-.02	0.00	-.05	-.01	0.06	0.07	0.06	0.14	0.04	0.08
26	MFU	0.03	0.17	0.01	0.00	0.08	0.09	0.05	0.01	0.03	-.04	-.03	0.06	-.02	-.02	0.01	0.01	-.03	-.04	0.02
27	MFC	-.02	0.15	0.08	0.05	0.14	0.15	0.14	0.04	0.13	0.05	0.02	0.11	0.02	0.06	0.13	0.13	0.09	0.08	0.15
28	MFR	-.09	0.02	0.03	0.02	0.11	0.12	0.05	0.00	0.16	0.03	0.06	0.04	0.08	0.01	0.05	0.02	0.05	0.05	0.06
29	MFS	-.06	-.04	0.04	0.04	0.07	0.15	0.10	-.02	0.05	-.06	0.02	0.07	0.06	-.02	0.03	0.04	-.01	-.04	0.04
30	MFT	-.08	0.16	0.09	0.05	0.15	0.21	0.02	0.02	0.12	-.06	-.02	0.14	0.08	0.06	0.10	0.13	0.05	0.03	0.10
31	MFI	-.06	0.09	0.04	0.04	0.14	0.13	0.08	0.01	0.04	-.04	-.03	0.15	0.04	0.01	0.07	0.07	0.03	-.01	0.07
32	DFU	-.20	0.04	0.02	0.05	0.10	0.14	0.05	0.15	0.12	0.09	0.05	0.13	0.10	0.08	0.17	0.11	0.14	0.07	0.15
33	DFC	0.06	0.15	0.12	0.10	0.17	0.13	0.19	0.19	0.18	0.10	0.08	0.16	0.21	0.19	0.20	0.21	0.21	0.19	0.21
34	DFR	-.14	0.18	0.25	0.11	0.16	0.05	0.10	0.28	0.17	0.18	0.04	0.26	0.26	0.13	0.19	0.20	0.27	0.15	0.20
35	DFS	-.18	0.05	0.13	0.12	0.14	0.14	0.15	0.14	0.22	0.15	0.11	0.15	0.11	0.15	0.22	0.22	0.22	0.18	0.23
36	DFT	-.14	0.03	0.15	0.15	0.17	0.25	0.15	0.15	0.24	0.14	0.16	0.19	0.18	0.17	0.25	0.22	0.20	0.19	0.26
37	DFI	-.07	-.06	0.08	-.03	0.03	-.02	0.13	0.02	0.10	0.02	0.04	0.19	0.12	0.13	0.12	0.15	0.13	0.15	0.14
38	NFU	-.12	0.17	0.18	0.12	0.23	0.08	0.16	0.17	0.13	0.17	-.08	0.15	0.07	0.16	0.18	0.20	0.21	0.16	0.21
39	NFC	-.10	0.22	0.10	0.08	0.19	0.12	0.17	0.12	0.14	0.19	0.12	0.17	0.11	0.07	0.13	0.06	0.13	0.09	0.09
40	NFR	-.26	0.16	0.40	0.29	0.33	0.35	0.24	0.26	0.37	0.24	0.24	0.36	0.31	0.29	0.42	0.38	0.44	0.39	0.45
41	NFS	-.03	0.15	0.14	0.14	0.17	0.21	0.10	0.18	0.25	0.21	0.09	0.17	0.11	0.07	0.17	0.09	0.17	0.13	0.16
42	NFT	-.01	0.03	0.24	0.26	0.20	0.23	0.16	0.20	0.20	0.22	0.06	0.17	0.16	0.21	0.20	0.24	0.31	0.28	0.28
43	NFI	-.19	0.19	0.35	0.32	0.31	0.25	0.28	0.22	0.33	0.18	0.13	0.29	0.20	0.32	0.38	0.36	0.43	0.38	0.43
44	EFU	-.11	0.18	0.20	0.15	0.14	0.20	0.20	0.11	0.11	0.15	0.12	0.20	0.05	0.25	0.26	0.30	0.26	0.25	0.29
45	EFC	-.22	0.24	0.23	0.21	0.27	0.18	0.23	0.26	0.19	0.25	0.08	0.28	0.21	0.18	0.20	0.24	0.28	0.23	0.27
46	EFR	0.03	0.21	0.10	0.13	0.12	0.12	0.08	0.19	0.14	0.17	0.05	0.09	0.09	0.05	0.11	0.13	0.18	0.15	0.14
47	EFS	-.14	0.20	0.29	0.22	0.18	0.30	0.26	0.28	0.27	0.24	0.18	0.29	0.22	0.18	0.21	0.24	0.24	0.24	0.24
48	EFT	-.08	0.13	0.26	0.17	0.12	0.22	0.20	0.23	0.19	0.14	0.14	0.16	0.10	0.20	0.15	0.23	0.24	0.21	0.22
49	EFI	-.06	0.22	0.19	0.26	0.22	0.28	0.22	0.18	0.20	0.17	0.28	0.25	0.20	0.06	0.16	0.19	0.16	0.15	0.17

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		20 CFU	21 CFC	22 CFR	23 CFS	24 CFT	25 CFI	26 MFU	27 MFC	28 MFR	29 MFS	30 MFT	31 MFI	32 DFU	33 DFC	34 DFR	35 DFS	36 DFT	37 DFI	38 NFU
1	AGE	-.22	-.18	-.27	-.13	-.21	0.00	0.03	-.02	-.09	-.06	-.08	-.06	-.20	0.06	-.14	-.18	-.14	-.07	-.12
2	SE1	0.02	0.08	0.27	-.04	0.04	0.07	0.17	0.15	0.02	-.04	0.16	0.09	0.04	0.15	0.18	0.05	0.03	-.06	0.17
3	PS1	0.05	0.24	0.37	0.07	0.28	0.00	0.01	0.08	0.03	0.04	0.09	0.04	0.02	0.12	0.25	0.13	0.15	0.08	0.18
4	PS2	0.10	0.24	0.33	0.13	0.12	0.00	0.00	0.05	0.02	0.04	0.05	0.04	0.05	0.10	0.11	0.12	0.15	-.03	0.12
5	SE2	0.14	0.20	0.35	0.15	0.19	0.04	0.08	0.14	0.11	0.07	0.15	0.14	0.10	0.17	0.16	0.14	0.17	0.03	0.23
6	SPM	0.13	0.20	0.40	0.20	0.20	0.06	0.09	0.15	0.12	0.15	0.21	0.13	0.14	0.13	0.05	0.14	0.25	-.02	0.08
7	RSP	0.10	0.07	0.28	0.14	0.17	-.01	0.05	0.14	0.05	0.10	0.02	0.08	0.05	0.19	0.10	0.15	0.15	0.13	0.16
8	SCO	0.09	0.02	0.18	0.00	0.13	0.00	0.01	0.04	0.00	-.02	0.02	0.01	0.15	0.19	0.28	0.14	0.15	0.02	0.17
9	WAR	0.20	0.22	0.29	0.12	0.18	0.11	0.03	0.13	0.16	0.05	0.12	0.04	0.12	0.18	0.17	0.22	0.24	0.10	0.13
10	LPE	0.23	0.13	0.18	0.07	0.11	-.02	-.04	0.05	0.03	-.06	-.56	-.04	0.09	0.10	0.18	0.15	0.14	0.02	0.17
11	JUD	0.03	0.07	0.20	0.03	0.25	0.00	-.03	0.02	0.06	0.02	-.02	-.03	0.05	0.08	0.04	0.11	0.16	0.04	-.08
12	ANA	0.06	0.10	0.30	0.15	0.17	-.05	0.06	0.11	0.04	0.07	0.14	0.15	0.13	0.16	0.26	0.15	0.19	0.19	0.15
13	VOC	0.10	0.05	0.27	0.03	0.12	-.01	-.02	0.02	0.08	0.06	0.08	0.04	0.10	0.21	0.26	0.11	0.18	0.12	0.07
14	MAR	0.21	0.29	0.38	0.22	0.14	0.06	-.02	0.06	0.01	-.02	0.06	0.01	0.08	0.19	0.13	0.15	0.17	0.13	0.16
15	OLA	0.19	0.27	0.41	0.24	0.20	0.07	0.01	0.13	0.05	0.03	0.10	0.07	0.17	0.20	0.19	0.22	0.25	0.12	0.18
16	SST	0.15	0.29	0.41	0.21	0.15	0.06	0.01	0.13	0.02	0.04	0.13	0.07	0.11	0.21	0.20	0.22	0.22	0.15	0.20
17	MAT	0.19	0.32	0.43	0.29	0.17	0.14	-.03	0.09	0.05	-.01	0.05	0.03	0.14	0.21	0.27	0.22	0.20	0.13	0.21
18	SCI	0.21	0.29	0.41	0.23	0.22	0.04	-.04	0.08	0.05	-.04	0.03	-.01	0.07	0.19	0.15	0.18	0.19	0.15	0.16
19	GTP	0.22	0.33	0.46	0.26	0.21	0.08	0.02	0.15	0.06	0.04	0.10	0.07	0.15	0.21	0.20	0.23	0.26	0.14	0.21
20	CFU	1.00	0.19	0.13	0.31	0.08	0.18	0.06	0.04	0.17	0.00	0.01	0.04	0.13	0.03	0.10	0.18	0.19	0.16	0.26
21	CFC	0.19	1.00	0.21	0.21	0.12	0.14	-.06	0.13	-.03	-.09	0.00	-.04	0.07	0.07	0.12	0.17	0.15	0.05	0.15
22	CFR	0.13	0.21	1.00	0.30	0.32	0.06	0.02	0.15	0.08	0.04	0.07	0.05	0.14	0.11	0.04	0.19	0.28	0.02	0.18
23	CFS	0.31	0.21	0.30	1.00	0.21	0.13	0.02	0.13	0.19	0.13	0.12	0.11	0.24	0.08	0.06	0.24	0.28	0.07	0.17
24	CFT	0.08	0.12	0.32	0.21	1.00	-.09	-.04	0.05	0.02	0.05	0.00	0.03	0.12	0.06	-.05	0.09	0.24	0.04	0.04
25	CFI	0.18	0.14	0.06	0.13	-.09	1.00	0.13	0.18	0.12	0.06	0.08	0.05	0.07	0.00	0.05	0.03	0.16	0.00	0.07
26	MFU	0.06	-.06	0.02	0.02	-.04	0.13	1.00	0.70	0.43	0.66	0.71	0.74	0.04	0.04	0.01	-.01	0.06	0.03	0.14
27	MFC	0.04	0.13	0.15	0.13	0.05	0.18	0.70	1.00	0.33	0.63	0.62	0.63	0.09	0.06	0.02	0.06	0.20	0.00	0.05
28	MFR	0.17	-.03	0.08	0.19	0.02	0.12	0.43	0.33	1.00	0.43	0.44	0.41	0.13	0.04	0.06	0.16	0.09	0.02	0.01
29	MFS	0.00	-.09	0.04	0.13	0.05	0.06	0.66	0.63	0.43	1.00	0.67	0.75	0.10	0.06	0.01	0.05	0.15	0.08	0.02
30	MFT	0.01	0.00	0.07	0.12	0.00	0.08	0.71	0.62	0.44	0.67	1.00	0.76	0.02	0.01	0.00	0.00	0.15	-.06	0.08
31	MFI	0.04	-.04	0.05	0.11	0.03	0.05	0.74	0.63	0.41	0.75	0.76	1.00	0.16	0.15	0.09	0.11	0.16	0.08	0.07
32	DFU	0.13	0.07	0.14	0.24	0.12	0.07	0.04	0.09	0.13	0.10	0.02	0.16	1.00	0.33	0.25	0.43	0.40	0.16	0.10
33	DFC	0.03	0.07	0.11	0.08	0.06	0.00	0.04	0.06	0.04	0.06	0.01	0.15	0.33	1.00	0.32	0.38	0.18	0.17	0.07
34	DFR	0.10	0.12	0.04	0.06	-.05	0.05	0.01	0.02	0.06	0.01	0.00	0.09	0.25	0.32	1.00	0.27	0.01	0.21	0.19
35	DFS	0.18	0.17	0.19	0.24	0.09	0.03	-.01	0.06	0.16	0.05	0.00	0.11	0.43	0.38	0.27	1.00	0.28	0.27	0.23
36	DFT	0.19	0.15	0.28	0.28	0.24	0.16	0.06	0.20	0.09	0.15	0.15	0.16	0.40	0.18	0.01	0.28	1.00	0.00	0.15
37	DFI	0.16	0.05	0.02	0.07	0.04	0.00	0.03	0.00	0.02	0.08	-.06	0.08	0.16	0.17	0.21	0.27	0.00	1.00	0.08
38	NFU	0.26	0.15	0.18	0.17	0.04	0.07	0.14	0.05	0.01	0.02	0.08	0.07	0.10	0.07	0.19	0.23	0.15	0.08	1.00
39	NFC	0.07	0.11	0.19	0.10	0.10	0.04	0.03	0.02	0.16	-.07	0.00	-.03	0.10	-.01	0.09	-.01	0.02	0.02	0.12
40	NFR	0.14	0.25	0.40	0.25	0.24	0.02	0.07	0.23	0.13	0.14	0.13	0.10	0.22	0.11	0.16	0.23	0.25	0.12	0.22
41	NFS	0.21	0.11	0.25	0.35	0.05	0.14	0.15	0.28	0.24	0.18	0.16	0.19	0.11	0.13	0.20	0.22	0.20	0.04	0.33
42	NFT	0.14	0.19	0.26	0.30	0.17	0.06	0.11	0.26	0.14	0.20	0.08	0.18	0.18	0.09	0.14	0.18	0.26	0.05	0.32
43	NFI	0.17	0.22	0.41	0.35	0.18	0.13	0.17	0.23	0.15	0.13	0.13	0.14	0.16	0.14	0.18	0.25	0.24	0.11	0.24
44	EFU	0.14	0.13	0.31	0.29	0.10	0.14	0.10	0.12	0.05	0.10	0.05	0.01	0.13	-.08	-.01	0.11	0.19	0.06	0.19
45	EFC	0.09	0.13	0.19	0.20	0.12	-.02	0.17	0.09	0.20	0.11	0.08	0.07	0.17	0.09	0.21	0.14	0.15	0.08	0.17
46	EFR	-.02	0.03	0.19	-.06	-.05	-.03	0.04	0.04	-.04	0.00	-.01	-.07	0.12	0.07	0.10	0.13	0.08	0.03	0.06
47	EFS	0.23	0.18	0.36	0.24	0.08	0.12	0.02	0.07	0.10	-.02	-.02	-.03	0.10	0.15	0.21	0.31	0.19	0.10	0.18
48	EFT	0.14	0.09	0.30	0.17	0.08	0.08	0.17	0.17	0.06	0.16	0.09	0.13	0.08	0.04	0.16	0.15	0.09	0.04	0.21
49	EFI	0.04	-.02	0.27	0.09	0.07	0.03	0.06	0.06	0.15	-.02	0.06	-.01	0.10	0.11	0.06	0.17	0.12	0.05	0.11

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		39 NFC	40 NFR	41 NFS	42 NFT	43 NFI	44 EFU	45 EFC	46 EFR	47 EFS	48 EFT	49 EFI
1	AGE	-.10	-.26	-.03	-.01	-.19	-.11	-.22	0.03	-.14	-.08	-.06
2	SE1	0.22	0.16	0.15	0.03	0.19	0.18	0.24	0.21	0.20	0.13	0.22
3	FS1	0.10	0.40	0.14	0.24	0.35	0.20	0.23	0.10	0.29	0.26	0.19
4	FS2	0.08	0.29	0.14	0.26	0.32	0.15	0.21	0.13	0.22	0.17	0.26
5	SE2	0.19	0.33	0.17	0.20	0.31	0.14	0.27	0.12	0.18	0.12	0.22
6	SPM	0.12	0.35	0.21	0.23	0.25	0.20	0.18	0.12	0.30	0.22	0.28
7	RSP	0.17	0.24	0.10	0.16	0.28	0.20	0.23	0.08	0.26	0.20	0.22
8	SCO	0.12	0.26	0.18	0.20	0.22	0.11	0.26	0.19	0.28	0.23	0.18
9	WAR	0.14	0.37	0.25	0.20	0.33	0.11	0.19	0.14	0.27	0.19	0.20
10	LPE	0.19	0.24	0.21	0.22	0.18	0.15	0.25	0.17	0.24	0.14	0.17
11	JUD	0.12	0.24	0.09	0.06	0.13	0.12	0.08	0.05	0.18	0.14	0.28
12	ANA	0.17	0.36	0.17	0.17	0.29	0.20	0.28	0.09	0.29	0.16	0.25
13	VDC	0.11	0.31	0.11	0.17	0.20	0.05	0.21	0.09	0.22	0.10	0.20
14	MAR	0.07	0.29	0.07	0.21	0.32	0.25	0.18	0.05	0.18	0.20	0.06
15	OLA	0.13	0.42	0.17	0.20	0.38	0.26	0.20	0.11	0.21	0.15	0.16
16	SST	0.06	0.38	0.09	0.20	0.36	0.30	0.24	0.13	0.24	0.23	0.19
17	MAT	0.13	0.44	0.17	0.31	0.43	0.26	0.28	0.18	0.24	0.24	0.16
18	SCI	0.09	0.39	0.13	0.28	0.38	0.25	0.23	0.15	0.24	0.21	0.15
19	GTP	0.09	0.45	0.16	0.28	0.43	0.29	0.27	0.14	0.24	0.22	0.17
20	CFU	0.07	0.14	0.20	0.14	0.17	0.14	0.09	-.02	0.23	0.14	0.04
21	CFC	0.11	0.25	0.11	0.19	0.22	0.13	0.13	0.03	0.18	0.09	-.02
22	CFR	0.19	0.40	0.25	0.26	0.41	0.31	0.19	0.19	0.36	0.30	0.27
23	CFS	0.10	0.25	0.35	0.30	0.35	0.29	0.20	-.06	0.24	0.17	0.09
24	CFT	0.10	0.24	0.05	0..17	0.18	0.10	0.12	-.05	0.08	0.08	0.07
25	CFI	0.04	0.02	0.14	0.06	0.13	0.14	-.02	-.03	0.12	0.18	0.03
26	MFU	0.03	0.07	0.15	0.11	0.17	0.10	0.17	0.04	0.02	0.17	0.06
27	MFC	0.02	0.23	0.28	0.26	0.23	0.12	0.09	0.04	0.07	0.17	0.06
28	MFR	0.16	0.13	0.24	0.14	0.15	0.05	0.20	-.04	0.10	0.06	0.15
29	MFS	-.07	0.14	0.18	0.20	0.13	0.10	0.11	0.00	-.02	0.16	-.02
30	MFT	0.00	0.13	0.16	0.08	0.13	0.05	0.08	-.01	-.02	0.09	0.06
31	MFI	-.03	0.10	0.19	0.18	0.14	0.01	0.07	-.07	-.03	0.13	-.01
32	DFU	0.10	0.22	0.11	0.18	0.16	0.13	0.17	0.12	0.10	0.08	0.10
33	DFC	-.01	0.11	0.13	0.09	0.14	-.08	0.09	0.07	0.15	0.04	0.11
34	DFR	0.09	0.16	0.20	0.14	0.18	-.01	0.21	0.12	0.21	0.16	0.06
35	DFS	-.01	0.23	0.22	0.18	0.25	0.11	0.14	0.13	0.31	0.15	0.17
36	DFT	0.02	0.25	0.20	0.26	0.24	0.19	0.15	0.08	0.19	0.09	0.12
37	DFI	0.02	0.12	0.04	0.05	0.11	0.06	0.08	0.03	0.10	0.04	0.05
38	NFU	0.12	0.22	0.33	0.32	0.24	0.19	0.17	0.06	0.18	0.21	0.11
39	NFC	1.00	0.18	0.19	0.15	0.12	0.21	0.27	0.09	0.18	0.10	0.16
40	NFR	0.18	1.00	0.35	0.41	0.37	0.26	0.37	0.19	0.24	0.24	0.27
41	NFS	0.19	0.35	1.00	0.49	0.31	0.19	0.21	0.06	0.27	0.22	0.11
42	NFT	0.15	0.41	0.49	1.00	0.26	0.26	0.23	0.08	0.19	0.34	0.09
43	NFI	0.12	0.37	0.31	0.26	1.00	0.28	0.27	0.16	0.39	0.24	0.31
44	EFU	0.21	0.26	0.19	0.26	0.28	1.00	0.41	0.29	0.38	0.39	0.27
45	EFC	0.27	0.37	0.21	0.23	0.27	0.41	1.00	0.26	0.43	0.31	0.36
46	EFR	0.09	0.19	0.06	0.08	0.16	0.29	0.26	1.00	0.39	0.28	0.29
47	EFS	0.18	0.24	0.27	0.19	0.39	0.38	0.43	0.39	1.00	0.37	0.44
48	EFT	0.10	0.24	0.22	0.34	0.24	0.39	0.31	0.28	0.37	1.00	0.13

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTF
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.22
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CSU	-.18	0.14	0.09	0.14	0.21	0.13	0.25	0.18	0.18	0.08	0.15	0.34	0.24	0.13	0.20	0.18	0.10	0.13	0.16
21	CSC	-.29	0.24	0.31	0.22	0.34	0.18	0.21	0.21	0.18	0.18	0.03	0.30	0.19	0.17	0.26	0.22	0.31	0.23	0.27
22	CSR	-.17	0.20	0.15	0.07	0.30	0.17	0.17	0.16	0.14	0.07	0.00	0.25	0.21	0.12	0.21	0.13	0.12	0.12	0.16
23	CSS	-.33	0.39	0.37	0.37	0.61	0.34	0.24	0.25	0.42	0.23	0.13	0.41	0.38	0.33	0.40	0.33	0.50	0.38	0.44
24	CST	-.19	0.24	0.25	0.24	0.30	0.10	0.36	0.34	0.23	0.22	0.13	0.36	0.34	0.32	0.35	0.34	0.30	0.27	0.33
25	CSI	-.10	0.08	0.13	0.10	0.17	0.14	0.23	0.08	0.18	0.10	0.16	0.20	0.16	0.11	0.14	0.11	0.16	0.10	0.16
26	MSU	-.24	0.22	0.17	0.23	0.29	0.18	0.18	0.25	0.12	0.25	0.06	0.30	0.23	0.22	0.24	0.27	0.20	0.21	0.27
27	MSC	-.11	0.15	0.18	0.22	0.18	0.11	0.20	0.19	0.10	0.26	0.10	0.24	0.19	0.18	0.27	0.20	0.18	0.15	0.22
28	MSR	-.08	0.06	0.20	-.02	0.19	0.03	0.10	0.13	0.11	0.16	0.07	0.23	0.12	0.09	0.09	0.10	0.13	0.11	0.12
29	MSS	0.00	0.22	0.18	0.23	0.23	0.18	0.03	0.26	0.07	0.26	0.04	0.13	0.16	0.15	0.12	0.14	0.18	0.14	0.17
30	MST	-.11	0.15	0.22	0.14	0.34	0.22	0.22	0.14	0.18	0.23	0.06	0.22	0.13	0.14	0.17	0.23	0.27	0.21	0.25
31	MSI	-.03	0.17	0.13	0.12	0.09	0.08	0.01	0.10	0.08	0.13	0.07	0.13	0.05	0.09	0.09	0.12	0.13	0.10	0.12
32	DSU	-.05	0.18	0.01	0.12	0.09	-.05	0.06	0.27	0.12	0.18	-.12	0.11	0.13	0.08	0.04	0.04	0.01	0.04	0.04
33	DSC	-.14	0.38	0.41	0.35	0.46	0.33	0.33	0.26	0.38	0.27	0.18	0.40	0.34	0.36	0.42	0.45	0.56	0.48	0.49
34	DSR	-.21	0.37	0.33	0.26	0.35	0.29	0.32	0.21	0.25	0.21	0.08	0.31	0.19	0.34	0.40	0.42	0.46	0.39	0.46
35	DSS	-.04	0.34	0.31	0.29	0.36	0.22	0.22	0.27	0.22	0.23	0.10	0.32	0.29	0.38	0.42	0.42	0.47	0.43	0.46
36	DST	-.24	0.08	0.21	0.16	0.16	0.13	0.09	0.10	0.03	0.20	0.00	0.16	0.15	0.19	0.24	0.17	0.23	0.19	0.23
37	DSI	-.09	0.11	0.28	0.16	0.28	0.15	0.31	0.15	0.15	0.17	0.06	0.25	0.23	0.26	0.35	0.32	0.42	0.36	0.39
38	NSU	-.22	0.24	0.24	0.27	0.39	0.28	0.18	0.23	0.22	0.17	0.04	0.29	0.26	0.36	0.44	0.34	0.49	0.40	0.45
39	NSC	-.15	0.25	0.27	0.24	0.31	0.18	0.12	0.17	0.22	0.19	0.08	0.19	0.21	0.33	0.35	0.34	0.45	0.37	0.42
40	NSR	-.09	0.35	0.34	0.20	0.26	0.15	0.16	0.18	0.17	0.26	0.00	0.24	0.22	0.30	0.31	0.28	0.38	0.32	0.35
41	NSS	-.22	0.34	0.29	0.27	0.34	0.23	0.12	0.22	0.24	0.21	0.04	0.25	0.18	0.34	0.38	0.35	0.42	0.37	0.41
42	NST	-.10	0.14	0.10	0.14	0.22	0.07	0.14	0.17	0.14	0.33	-.02	0.18	0.20	0.22	0.21	0.22	0.21	0.19	0.21
43	NSI	-.18	0.19	0.37	0.26	0.34	0.26	0.18	0.21	0.30	0.17	0.03	0.26	0.21	0.38	0.44	0.44	0.49	0.45	0.49
44	ESU	-.10	0.32	0.32	0.31	0.31	0.22	0.19	0.16	0.26	0.23	0.10	0.28	0.30	0.28	0.27	0.27	0.29	0.27	0.30
45	ESO	-.25	0.32	0.38	0.35	0.44	0.31	0.21	0.30	0.36	0.25	0.19	0.23	0.29	0.39	0.43	0.41	0.50	0.46	0.48
46	ESR	-.26	0.28	0.28	0.33	0.35	0.22	0.19	0.18	0.17	0.18	0.13	0.25	0.24	0.23	0.28	0.24	0.33	0.24	0.30
47	ESS	-.23	0.35	0.27	0.31	0.40	0.20	0.14	0.16	0.12	0.22	0.04	0.30	0.24	0.27	0.26	0.24	0.30	0.26	0.31
48	EST	-.10	0.21	0.19	0.28	0.20	0.27	0.17	0.23	0.19	0.17	0.08	0.17	0.20	0.28	0.26	0.22	0.26	0.24	0.28
49	ESI	-.10	0.05	0.18	0.11	0.12	0.16	0.04	0.04	0.07	0.08	0.09	0.04	0.01	0.07	0.06	0.03	0.09	0.03	0.07

CORRELATIONAL STUDY : CA-2 : CORRELATION MATRIX - SYMBOLIC TESTS(CONTD)

		20 CSU	21 CSC	22 CSR	23 CSS	24 CST	25 CSI	26 MSU	27 MSC	28 MSR	29 MSS	30 MST	31 MSI	32 DSU	33 DSC	34 DSR	35 DSS	36 DST	37 DSI	38 NSU
1	AGE	-.18	-.29	-.17	-.33	-.19	-.10	-.24	-.11	-.08	0.00	-.11	-.03	-.05	-.14	-.21	-.04	-.24	-.09	-.22
2	SE1	0.14	0.24	0.20	0.39	0.24	0.08	0.22	0.15	0.06	0.22	0.15	0.17	0.18	0.38	0.37	0.34	0.08	0.11	0.24
3	FS1	0.09	0.31	0.15	0.37	0.25	0.13	0.17	0.18	0.20	0.18	0.22	0.13	0.01	0.41	0.33	0.31	0.21	0.28	0.24
4	PS2	0.14	0.22	0.07	0.37	0.24	0.10	0.23	0.22	-.02	0.23	0.14	0.12	0.12	0.35	0.26	0.29	0.16	0.16	0.27
5	SE2	0.21	0.34	0.30	0.61	0.30	0.17	0.29	0.18	0.19	0.23	0.34	0.09	0.89	0.46	0.35	0.36	0.16	0.28	0.39
6	SFM	0.13	0.18	0.17	0.34	0.10	0.14	0.18	0.11	0.03	0.18	0.22	0.08	-.05	0.33	0.29	0.22	0.13	0.15	0.28
7	RSP	0.25	0.21	0.17	0.24	0.36	0.23	0.18	0.20	0.10	0.03	0.22	0.01	0.06	0.33	0.32	0.22	0.09	0.31	0.18
8	SCO	0.18	0.21	0.16	0.25	0.34	0.08	0.25	0.19	0.13	0.26	0.14	0.10	0.27	0.26	0.21	0.27	0.10	0.15	0.23
9	WAR	0.10	0.18	0.15	0.42	0.23	0.18	0.12	0.10	0.11	0.07	0.18	0.08	0.12	0.38	0.25	0.22	0.03	0.15	0.22
10	LFE	0.08	0.18	0.07	0.23	0.22	0.10	0.25	0.26	0.16	0.26	0.23	0.13	0.18	0.27	0.21	0.23	0.20	0.17	0.17
11	JUD	0.15	0.03	0.00	0.13	0.13	0.16	0.06	0.10	0.07	0.04	0.06	0.07	-.12	0.18	0.08	0.10	0.00	0.06	0.04
12	ANA	0.34	0.30	0.25	0.41	0.36	0.20	0.30	0.24	0.23	0.13	0.22	0.13	0.11	0.40	0.31	0.32	0.16	0.25	0.29
13	VOC	0.24	0.19	0.21	0.38	0.34	0.16	0.23	0.19	0.12	0.16	0.13	0.05	0.13	0.34	0.19	0.29	0.15	0.23	0.26
14	MAR	0.13	0.17	0.12	0.33	0.32	0.11	0.22	0.18	0.09	0.15	0.14	0.09	0.08	0.36	0.34	0.38	0.19	0.26	0.36
15	DLA	0.20	0.26	0.21	0.40	0.35	0.14	0.24	0.27	0.09	0.12	0.17	0.09	0.04	0.42	0.40	0.42	0.24	0.35	0.44
16	SST	0.18	0.22	0.13	0.33	0.34	0.11	0.27	0.20	0.10	0.14	0.23	0.12	0.04	0.45	0.42	0.42	0.17	0.32	0.34
17	MAT	0.10	0.31	0.12	0.50	0.30	0.16	0.20	0.18	0.13	0.18	0.27	0.13	0.01	0.56	0.46	0.47	0.23	0.42	0.49
18	SCI	0.13	0.23	0.12	0.38	0.27	0.10	0.21	0.15	0.11	0.14	0.21	0.10	0.04	0.48	0.39	0.43	0.19	0.36	0.40
19	GTP	0.16	0.27	0.16	0.44	0.33	0.16	0.27	0.22	0.12	0.17	0.25	0.12	0.04	0.49	0.46	0.46	0.23	0.39	0.45
20	CSU	1.00	0.43	0.62	0.40	0.51	0.31	0.23	0.15	0.07	0.11	0.30	0.13	0.02	0.20	0.11	0.12	0.02	0.12	0.14
21	CSC	0.43	1.00	0.47	0.46	0.43	0.25	0.28	0.11	0.09	0.16	0.25	0.05	0.18	0.42	0.34	0.18	0.23	0.29	0.33
22	CSR	0.62	0.47	1.00	0.43	0.43	0.36	0.19	0.13	0.14	0.03	0.25	0.10	0.02	0.14	0.18	0.13	0.08	0.17	0.17
23	CSS	0.40	0.46	0.43	1.00	0.54	0.39	0.22	0.14	0.15	0.12	0.31	0.20	0.10	0.55	0.43	0.33	0.23	0.38	0.44
24	CST	0.51	0.43	0.43	0.54	1.00	0.35	0.19	0.14	0.12	0.13	0.24	0.19	0.22	0.35	0.28	0.25	0.11	0.29	0.27
25	CSI	0.31	0.25	0.36	0.39	0.35	1.00	0.03	0.03	0.04	-.04	0.16	0.07	-.02	0.26	0.20	0.11	0.10	0.20	0.10
26	MSU	0.23	0.28	0.19	0.22	0.19	0.03	1.00	0.35	0.05	0.38	0.39	0.30	0.01	0.17	0.25	0.19	0.04	0.16	0.12
27	MSC	0.15	0.11	0.13	0.14	0.14	0.03	0.35	1.00	0.13	0.28	0.41	0.45	0.00	0.23	0.14	0.14	0.12	0.01	0.19
28	MSR	0.07	0.09	0.14	0.15	0.12	0.04	0.05	0.13	1.00	0.14	0.32	0.15	0.12	0.13	0.17	0.17	0.13	0.17	0.09
29	MSS	0.11	0.16	0.03	0.12	0.13	-.04	0.38	0.28	0.14	1.00	0.28	0.29	0.02	0.18	0.23	0.19	0.04	0.07	0.11
30	MST	0.30	0.25	0.25	0.31	0.24	0.16	0.39	0.41	0.32	0.28	1.00	0.40	-.03	0.37	0.30	0.22	0.20	0.27	0.19
31	MSI	0.13	0.05	0.10	0.20	0.19	0.07	0.30	0.45	0.15	0.29	0.40	1.00	-.05	0.16	0.13	0.13	-.03	0.06	0.08
32	DSU	0.02	0.18	0.02	0.10	0.22	-.02	0.01	0.00	0.12	0.02	-.03	-.05	1.00	0.09	0.07	0.02	0.18	0.02	0.12
33	DSC	0.20	0.42	0.14	0.55	0.35	0.26	0.17	0.23	0.13	0.18	0.37	0.16	0.09	1.00	0.60	0.41	0.17	0.35	0.42
34	DSR	0.11	0.34	0.18	0.43	0.28	0.20	0.25	0.14	0.17	0.23	0.30	0.13	0.07	0.60	1.00	0.45	0.24	0.41	0.36
35	DSS	0.12	0.18	0.13	0.33	0.25	0.11	0.19	0.14	0.17	0.19	0.22	0.13	0.02	0.41	0.45	1.00	0.16	0.31	0.28
36	DST	0.02	0.23	0.08	0.23	0.11	0.10	0.04	0.12	0.13	0.04	0.20	-.03	0.18	0.17	0.24	0.16	1.00	0.22	0.29
37	DSI	0.12	0.29	0.17	0.38	0.29	0.20	0.16	0.01	0.17	0.07	0.27	0.06	0.02	0.35	0.41	0.31	0.22	1.00	0.29
38	NSU	0.14	0.33	0.17	0.44	0.27	0.10	0.12	0.19	0.09	0.11	0.19	0.07	0.12	0.42	0.36	0.28	0.29	0.29	1.00
39	NSC	0.04	0.20	-.14	0.35	0.28	0.13	0.19	0.20	0.09	0.17	0.32	0.17	0.20	0.45	0.33	0.26	0.18	0.35	0.35
40	NSR	0.22	0.33	0.19	0.35	0.36	0.13	0.15	0.17	0.09	0.24	0.24	-.02	0.26	0.39	0.33	0.26	0.27	0.27	0.35
41	NSS	0.15	0.28	0.16	0.41	0.36	0.02	0.24	0.20	0.09	0.10	0.25	0.23	0.22	0.38	0.44	0.29	0.21	0.33	0.45
42	NST	0.04	0.11	0.03	0.20	0.25	0.02	0.22	0.22	0.15	0.14	0.23	0.13	0.31	0.18	0.20	0.18	0.19	0.17	0.28
43	NS1	0.15	0.26	0.07	0.38	0.25	0.06	0.15	0.14	0.15	0.17	0.24	0.10	0.09	0.42	0.46	0.32	0.20	0.38	0.40
44	ESU	0.03	0.23	0.19	0.38	0.19	0.22	0.11	0.20	0.11	0.05	0.16	0.14	0.16	0.36	0.38	0.32	0.21	0.20	0.29
45	ESC	0.15	0.40	0.13	0.40	0.21	0.09	0.31	0.19	0.08	0.26	0.24	0.10	0.10	0.54	0.42	0.32	0.13	0.21	0.40
46	ESR	0.07	0.24	0.06	0.35	0.26	0.12	0.09	0.10	0.11	0.20	0.12	0.04	0.17	0.34	0.37	0.24	0.17	0.16	0.26
47	ESS	0.11	0.36	0.18	0.44	0.27	0.12	0.23	0.14	0.18	0.30	0.24	0.19	0.08	0.45	0.41	0.31	0.14	0.27	0.34
48	EST	0.03	0.18	0.16	0.22	0.09	0.07	0.16	0.05	0.14	0.17	0.09	0.02	0.13	0.22	0.25	0.26	0.11	0.21	0.24

CORRELATIONAL STUDY : CA 7 : CORRELATION MATRIX SYMBOLIC TESTS (CONTD)

		39 NSC	40 NSR	41 NSS	42 NST	43 NSI	44 ESU	45 ESC	46 ESR	47 ESS	48 EST	49 ESI
1	AGE	-.15	-.09	-.22	-.10	-.18	-.10	-.25	-.25	-.23	-.10	-.10
2	SE1	0.25	0.35	0.34	0.14	0.19	0.32	0.32	0.28	0.35	0.21	0.05
3	FS1	0.27	0.34	0.29	0.10	0.37	0.32	0.38	0.28	0.27	0.19	0.18
4	FS2	0.24	0.20	0.27	0.14	0.26	0.31	0.35	0.33	0.31	0.28	0.11
5	SE2	0.31	0.26	0.34	0.22	0.34	0.31	0.44	0.35	0.40	0.20	0.12
6	SPM	0.18	0.15	0.23	0.07	0.24	0.22	0.31	0.22	0.20	0.24	0.16
7	RSP	0.12	0.16	0.12	0.14	0.18	0.19	0.21	0.19	0.14	0.17	0.04
8	SCO	0.17	0.18	0.22	0.17	0.21	0.16	0.30	0.18	0.16	0.23	0.04
9	WAR	0.22	0.17	0.24	0.14	0.30	0.26	0.36	0.17	0.12	0.19	0.07
10	LPE	0.19	0.26	0.21	0.33	0.17	0.23	0.25	0.18	0.22	0.17	0.08
11	JUD	0.08	0.00	0.04	-.02	0.03	0.10	0.19	0.13	0.04	0.08	0.09
12	ANA	0.19	0.24	0.25	0.18	0.26	0.28	0.23	0.25	0.30	0.17	0.04
13	VOC	0.21	0.22	0.18	0.20	0.21	0.30	0.29	0.24	0.24	0.20	0.01
14	MAR	0.33	0.30	0.35	0.22	0.38	0.28	0.39	0.23	0.27	0.28	0.07
15	OLA	0.35	0.31	0.38	0.21	0.44	0.27	0.43	0.28	0.26	0.26	0.06
16	SST	0.34	0.28	0.35	0.22	0.44	0.27	0.41	0.24	0.24	0.22	0.03
17	MAT	0.45	0.38	0.42	0.21	0.49	0.29	0.50	0.33	0.30	0.26	0.09
18	SCI	0.37	0.32	0.37	0.19	0.45	0.27	0.46	0.24	0.26	0.24	0.03
19	GTP	0.42	0.35	0.41	0.21	0.49	0.30	0.48	0.30	0.31	0.28	0.07
20	CSU	0.04	0.22	0.15	0.04	0.15	0.03	0.15	0.07	0.11	0.03	-.02
21	CSC	0.20	0.33	0.28	0.11	0.26	0.23	0.40	0.24	0.36	0.18	0.25
22	CSR	-.01	0.19	0.16	0.03	0.07	0.19	0.13	0.06	0.18	0.16	0.02
23	CSS	0.35	0.35	0.41	0.20	0.38	0.38	0.40	0.35	0.44	0.22	0.13
24	CST	0.28	0.36	0.36	0.25	0.25	0.19	0.21	0.26	0.27	0.09	0.04
25	CSI	0.13	0.13	0.02	0.02	0.06	0.22	0.09	0.12	0.12	0.07	0.14
26	MSU	0.19	0.15	0.24	0.22	0.15	0.11	0.31	0.09	0.23	0.16	0.12
27	MSC	0.20	0.17	0.20	0.22	0.14	0.20	0.19	0.10	0.14	0.05	0.06
28	MSR	0.09	0.09	0.09	0.15	0.15	0.11	0.08	0.11	0.18	0.14	-.04
29	MSS	0.17	0.24	0.10	0.14	0.17	0.05	0.26	0.20	0.30	0.17	0.11
30	MST	0.32	0.24	0.25	0.23	0.24	0.16	0.24	0.12	0.24	0.09	0.11
31	MSI	0.17	-.02	0.23	0.13	0.10	0.14	0.10	0.04	0.19	0.02	-.01
32	DSU	0.20	0.26	0.22	0.31	0.09	0.16	0.10	0.17	0.08	0.13	0.04
33	DSC	0.45	0.39	0.38	0.18	0.42	0.36	0.54	0.34	0.50	0.22	0.13
34	DSR	0.33	0.33	0.44	0.20	0.46	0.38	0.42	0.37	0.41	0.25	0.20
35	DSS	0.26	0.26	0.29	0.18	0.32	0.32	0.32	0.24	0.31	0.26	-.02
36	DST	0.18	0.27	0.21	0.19	0.20	0.21	0.13	0.17	0.14	0.11	0.14
37	DSI	0.35	0.27	0.33	0.17	0.38	0.20	0.21	0.16	0.27	0.21	0.03
38	NSU	0.35	0.35	0.45	0.28	0.40	0.29	0.40	0.26	0.34	0.24	0.16
39	NSC	1.00	0.39	0.41	0.39	0.44	0.21	0.45	0.20	0.35	0.19	0.07
40	NSR	0.39	1.00	0.42	0.36	0.36	0.30	0.28	0.24	0.28	0.17	0.19
41	NSS	0.41	0.42	1.00	0.38	0.44	0.28	0.35	0.20	0.41	0.23	0.08
42	NST	0.39	0.36	0.38	1.00	0.23	0.17	0.16	0.15	0.19	0.07	-.04
43	NSI	0.44	0.36	0.44	0.23	1.00	0.23	0.31	0.17	0.22	0.15	0.02
44	ESU	0.21	0.30	0.28	0.17	0.23	1.00	0.27	0.19	0.31	0.22	0.12
45	ESC	0.45	0.28	0.35	0.16	0.31	0.27	1.00	0.33	0.32	0.25	0.14
46	ESR	0.20	0.24	0.20	0.15	0.17	0.19	0.33	1.00	0.36	0.20	0.10
47	ESS	0.35	0.28	0.41	0.19	0.22	0.31	0.32	0.36	1.00	0.34	0.16
48	EST	0.19	0.17	0.23	0.07	0.15	0.22	0.25	0.20	0.34	1.00	0.23
49	ESI	0.07	0.19	0.08	-.04	0.02	0.12	0.14	0.10	0.16	0.23	1.00

TABLE : XVI - c

[illegible] CORRELATION MATRIX [illegible] TESTS

		1 AGE	2 SE1	3 FS1	4 FS2	5 SE2	6 SPM	7 RSF	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTF
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	FS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	FS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSF	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.15	1.00	0.74	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CMU	-.26	0.06	0.30	0.20	0.14	0.15	0.39	0.29	0.26	0.14	0.16	0.40	0.39	0.29	0.39	0.36	0.34	0.31	0.36
21	CMC	-.14	0.11	0.24	0.15	0.10	0.11	0.21	0.22	0.17	0.14	0.15	0.33	0.28	0.22	0.33	0.27	0.32	0.23	0.31
22	CMR	-.32	0.20	0.35	0.28	0.26	0.28	0.32	0.27	0.32	0.20	0.22	0.45	0.37	0.29	0.41	0.36	0.38	0.35	0.41
23	CMS	-.30	0.16	0.18	0.23	0.26	0.15	0.28	0.20	0.21	0.20	0.03	0.32	0.26	0.26	0.33	0.32	0.33	0.30	0.34
24	CMT	-.14	0.10	0.15	0.11	0.13	0.07	0.28	0.24	0.08	0.07	0.02	0.31	0.25	0.14	0.19	0.22	0.23	0.15	0.20
25	CMI	-.13	0.20	0.18	0.15	0.19	0.14	0.13	0.26	0.08	0.18	0.08	0.29	0.23	0.19	0.21	0.24	0.22	0.17	0.23
26	MMU	-.36	0.07	0.30	0.27	0.19	0.23	0.37	0.30	0.34	0.26	0.21	0.33	0.33	0.36	0.40	0.36	0.29	0.33	0.39
27	MMC	-.22	0.07	0.24	0.27	0.21	0.20	0.22	0.21	0.25	0.15	0.18	0.29	0.26	0.29	0.33	0.34	0.26	0.25	0.34
28	MMR	-.25	0.25	0.39	0.28	0.37	0.27	0.29	0.35	0.37	0.16	0.27	0.37	0.34	0.33	0.40	0.39	0.43	0.37	0.44
29	MMS	-.05	0.12	0.12	0.07	0.10	0.12	0.08	0.11	0.11	0.05	0.07	0.14	0.12	0.18	0.16	0.15	0.09	0.11	0.14
30	MMT	-.23	0.06	0.09	0.03	0.13	0.07	0.01	0.10	0.07	0.12	-.03	0.16	0.07	0.08	0.10	0.07	0.13	0.09	0.12
31	MMI	-.23	0.11	0.08	0.09	0.15	0.06	0.06	0.09	0.08	0.20	0.02	0.14	0.06	0.11	0.16	0.15	0.19	0.13	0.18
32	DMU	-.14	0.14	0.08	0.06	0.22	0.06	0.16	0.20	0.15	0.12	-.01	0.11	0.09	0.16	0.16	0.16	0.12	0.13	0.15
33	DMC	-.22	0.17	0.14	0.18	0.23	0.15	0.25	0.20	0.19	0.14	0.08	0.24	0.22	0.34	0.36	0.36	0.28	0.31	0.37
34	DMR	-.11	0.21	0.28	0.19	0.31	0.25	0.26	0.23	0.23	0.16	0.19	0.24	0.27	0.31	0.35	0.37	0.36	0.29	0.37
35	DMS	-.13	0.21	0.23	0.20	0.29	0.21	0.24	0.18	0.19	0.19	0.05	0.21	0.28	0.34	0.40	0.33	0.36	0.37	0.39
36	DMT	-.10	0.20	0.23	0.17	0.21	0.17	0.38	0.29	0.19	0.14	0.20	0.27	0.24	0.35	0.36	0.38	0.33	0.35	0.39
37	DMI	-.11	0.16	0.16	0.13	0.23	0.08	0.24	0.23	0.14	0.15	0.03	0.19	0.14	0.30	0.22	0.32	0.19	0.23	0.26
38	NMU(I)	-.26	0.28	0.43	0.32	0.31	0.26	0.47	0.46	0.35	0.20	0.21	0.46	0.52	0.38	0.46	0.46	0.41	0.36	0.46
39	NMC	-.08	0.16	0.12	0.12	0.19	0.27	0.17	0.17	0.16	0.07	0.13	0.24	0.25	0.19	0.20	0.20	0.14	0.11	0.21
40	NMR	-.21	0.22	0.24	0.23	0.25	0.29	0.24	0.25	0.19	0.03	0.14	0.37	0.35	0.27	0.32	0.33	0.24	0.20	0.33
41	NMS	-.05	0.16	0.14	0.16	0.20	0.22	0.19	0.18	0.15	0.15	0.04	0.21	0.24	0.19	0.24	0.24	0.14	0.09	0.23
42	NMT	-.02	0.23	0.23	0.14	0.22	0.14	0.12	0.19	0.19	0.06	0.03	0.27	0.20	0.10	0.15	0.16	0.12	0.06	0.15
43	NMI	-.26	0.25	0.33	0.27	0.41	0.30	0.33	0.26	0.28	0.16	0.06	0.33	0.37	0.24	0.37	0.29	0.33	0.23	0.36
44	NMU(II)	-.07	0.16	0.14	0.12	0.21	0.12	0.23	0.24	0.10	0.04	0.00	0.21	0.24	0.12	0.16	0.14	0.11	0.05	0.17
45	EMU	-.15	0.03	0.24	0.21	0.12	0.18	0.21	0.11	0.18	0.08	0.04	0.24	0.18	0.20	0.22	0.26	0.26	0.24	0.26
46	EMC	-.18	0.02	0.18	0.04	0.11	0.14	0.23	0.10	0.15	0.02	0.16	0.27	0.20	0.31	0.33	0.33	0.30	0.30	0.34
47	EMR	-.41	0.24	0.40	0.26	0.42	0.33	0.32	0.31	0.32	0.26	0.25	0.48	0.36	0.30	0.43	0.43	0.46	0.41	0.45
48	EMS	-.12	0.25	0.20	0.20	0.24	0.28	0.31	0.30	0.22	0.24	0.20	0.41	0.40	0.40	0.44	0.41	0.36	0.35	0.42
49	EMT	0.09	0.10	0.17	0.14	0.19	0.17	0.05	0.14	0.12	0.20	0.06	0.10	0.12	0.07	0.10	0.08	0.09	0.09	0.11
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.31	0.22	0.25	0.15	0.06	0.29	0.24	0.31	0.34	0.37	0.37	0.36	0.39

CORRELATIONAL STUDY : CA - 2 : CORRELATION MATRIX - SEMANTIC TESTS (CONTD)

		20 CMU	21 CMC	22 CMR	23 CMS	24 CMT	25 CMI	26 MMU	27 MMC	28 MMR	29 MMS	30 MMT	31 MMI	32 DMU	33 DMC	34 DMR	35 DMS	36 DMT	37 DMI	38 NMU(I)
1	AGE	-.26	-.14	-.32	-.30	-.14	-.13	-.36	-.22	-.25	-.05	-.23	-.23	-.14	-.22	-.11	-.13	-.10	-.11	-.26
2	SE1	0.06	0.11	0.20	0.16	0.10	0.20	0.07	0.07	0.25	0.12	0.06	0.11	0.14	0.17	0.21	0.21	0.20	0.16	0.28
3	FS1	0.30	0.24	0.35	0.18	0.15	0.18	0.30	0.14	0.39	0.12	0.09	0.08	0.08	0.14	0.28	0.23	0.23	0.16	0.43
4	FS2	0.20	0.15	0.28	0.23	0.11	0.15	0.27	0.27	0.28	0.07	0.03	0.09	0.06	0.18	0.19	0.20	0.17	0.13	0.32
5	SE2	0.14	0.10	0.26	0.26	0.13	0.19	0.19	0.21	0.37	0.10	0.13	0.15	0.22	0.23	0.31	0.29	0.21	0.23	0.31
6	SFM	0.15	0.11	0.28	0.15	0.07	0.14	0.23	0.20	0.27	0.12	0.07	0.06	0.06	0.15	0.25	0.21	0.17	0.08	0.26
7	RSP	0.39	0.21	0.32	0.28	0.28	0.13	0.37	0.22	0.29	0.08	0.01	0.06	0.16	0.25	0.26	0.24	0.38	0.24	0.47
8	SCO	0.29	0.22	0.27	0.20	0.24	0.26	0.30	0.21	0.35	0.11	0.10	0.09	0.20	0.20	0.23	0.18	0.29	0.23	0.46
9	WAR	0.26	0.17	0.32	0.21	0.08	0.08	0.34	0.25	0.37	0.11	0.07	0.08	0.15	0.19	0.23	0.19	0.19	0.14	0.35
10	LPE	0.14	0.14	0.20	0.20	0.07	0.18	0.26	0.15	0.16	0.05	0.12	0.20	0.12	0.14	0.16	0.19	0.14	0.15	0.20
11	JUD	0.16	0.15	0.22	0.03	0.02	0.08	0.21	0.18	0.27	0.07	-.03	0.02	-.01	0.08	0.19	0.05	0.20	0.03	0.21
12	ANA	0.04	0.33	0.45	0.32	0.31	0.29	0.33	0.29	0.37	0.14	0.16	0.14	0.11	0.24	0.24	0.21	0.27	0.19	0.46
13	VOC	0.39	0.28	0.37	0.26	0.25	0.23	0.33	0.26	0.34	0.12	0.07	0.06	0.09	0.22	0.27	0.28	0.24	0.14	0.52
14	MAR	0.29	0.22	0.29	0.26	0.14	0.19	0.36	0.29	0.33	0.18	0.08	0.11	0.16	0.34	0.31	0.34	0.35	0.30	0.38
15	OLA	0.39	0.33	0.41	0.33	0.19	0.21	0.40	0.33	0.40	0.16	0.10	0.16	0.16	0.36	0.35	0.40	0.36	0.22	0.46
16	SST	0.36	0.27	0.36	0.32	0.22	0.24	0.36	0.34	0.39	0.15	0.07	0.15	0.16	0.36	0.37	0.33	0.38	0.32	0.46
17	MAT	0.34	0.32	0.38	0.33	0.23	0.22	0.29	0.26	0.43	0.09	0.13	0.19	0.12	0.28	0.36	0.36	0.33	0.19	0.41
18	SCI	0.31	0.23	0.35	0.30	0.15	0.17	0.33	0.25	0.37	0.11	0.09	0.13	0.13	0.31	0.29	0.37	0.35	0.23	0.36
19	GTP	0.36	0.31	0.41	0.34	0.20	0.23	0.39	0.34	0.44	0.14	0.12	0.18	0.15	0.37	0.37	0.39	0.39	0.26	0.46
20	CMU	1.00	0.53	0.54	0.49	0.51	0.26	0.41	0.29	0.29	0.11	0.05	0.08	0.12	0.22	0.12	0.20	0.32	0.13	0.50
21	CMC	0.53	1.00	0.49	0.45	0.44	0.20	0.19	0.18	0.20	0.04	0.03	0.04	0.15	0.21	0.26	0.23	0.20	0.18	0.34
22	CMR	0.55	0.49	1.00	0.43	0.42	0.31	0.35	0.22	0.29	0.09	0.12	0.12	0.12	0.35	0.19	0.24	0.28	0.08	0.48
23	CMS	0.49	0.45	0.43	1.00	0.47	0.34	0.26	0.24	0.20	0.19	0.12	-.02	0.19	0.18	0.22	0.16	0.25	0.16	0.25
24	CMT	0.51	0.44	0.42	0.47	1.00	0.41	0.21	0.11	0.12	0.06	0.12	0.08	0.26	0.17	0.26	0.14	0.31	0.24	0.36
25	CMI	0.26	0.20	0.31	0.34	0.41	1.00	0.14	0.19	0.13	0.12	0.16	0.10	0.34	0.18	0.38	0.10	0.33	0.22	0.23
26	MMU	0.41	0.19	0.35	0.26	0.21	0.14	1.00	0.56	0.32	0.23	0.33	0.23	0.14	0.13	0.28	0.23	0.28	0.21	0.35
27	MMC	0.29	0.18	0.22	0.24	0.11	0.19	0.56	1.00	0.30	0.11	0.35	0.23	0.07	0.06	0.14	0.14	0.20	0.24	0.27
28	MMR	0.29	0.20	0.29	0.20	0.12	0.13	0.32	0.30	1.00	0.15	0.17	0.22	0.07	0.19	0.21	0.24	0.22	0.10	0.38
29	MMS	0.11	0.04	0.09	0.19	0.06	0.12	0.20	0.11	0.15	1.00	0.03	-.05	0.02	0.05	0.00	0.07	0.07	0.05	0.09
30	MMT	0.05	0.03	0.12	0.12	0.12	0.16	0.33	0.35	0.17	0.03	1.00	0.42	0.21	0.14	0.20	0.16	0.07	0.14	0.09
31	MMI	0.08	0.04	0.12	-.02	0.08	0.10	0.23	0.23	0.22	-.05	0.42	1.00	0.18	0.09	0.16	0.18	0.10	0.07	0.09
32	DMU	0.12	0.15	0.12	0.19	0.26	0.34	0.14	0.07	0.07	0.02	0.21	0.18	1.00	0.45	0.46	0.25	0.38	0.44	0.18
33	DMC	0.22	0.21	0.35	0.18	0.17	0.18	0.13	0.06	0.19	0.05	0.14	0.09	0.45	1.00	0.34	0.34	0.30	0.37	0.28
34	DMR	0.12	0.26	0.19	0.22	0.26	0.38	0.28	0.14	0.21	0.00	0.20	0.16	0.46	0.34	1.00	0.42	0.43	0.52	0.29
35	DMS	0.20	0.23	0.24	0.16	0.14	0.10	0.23	0.14	0.24	0.07	0.16	0.18	0.25	0.34	0.42	1.00	0.36	0.33	0.35
36	DMT	0.32	0.20	0.28	0.25	0.31	0.33	0.28	0.20	0.22	0.07	0.07	0.10	0.38	0.30	0.43	0.36	1.00	0.44	0.40
37	DMI	0.13	0.18	0.08	0.16	0.24	0.22	0.21	0.24	0.10	0.05	0.14	0.07	0.44	0.37	0.52	0.33	0.44	1.00	0.23
38	NMU(I)	0.50	0.34	0.38	0.25	0.36	0.23	0.35	0.27	0.38	0.09	0.09	0.09	0.18	0.28	0.29	0.35	0.40	0.23	1.00
39	NMC	0.07	0.01	0.10	0.01	0.08	0.08	0.17	0.08	0.23	0.14	0.04	0.01	0.06	0.13	0.12	0.20	0.19	0.12	0.46
40	NMR	0.22	0.22	0.27	0.21	0.21	0.16	0.22	0.17	0.25	0.12	0.02	0.06	0.06	0.17	0.21	0.24	0.28	0.14	0.68
41	NMS	0.11	0.10	0.16	0.12	0.08	0.07	0.18	0.14	0.25	0.06	0.01	-.07	0.03	0.04	0.12	0.14	0.10	0.11	0.54
42	NMT	0.06	0.06	0.13	0.10	0.07	0.03	0.11	0.20	0.19	0.05	0.08	0.01	0.07	0.09	0.04	0.14	0.11	0.18	0.46
43	NMI	0.24	0.14	0.29	0.21	0.23	0.13	0.34	0.28	0.35	0.05	0.14	0.10	0.12	0.29	0.22	0.25	0.23	0.19	0.59
44	NMU(II)	0.14	0.12	0.14	0.20	0.17	0.13	0.14	0.11	0.21	0.04	0.01	0.02	0.04	0.05	0.08	0.11	0.19	0.12	0.58
45	EMU	0.29	0.16	0.18	0.20	0.21	0.08	0.24	0.18	0.25	0.07	0.12	0.05	0.16	0.06	0.14	0.15	0.04	0.17	0.23
46	EMC	0.33	0.26	0.30	0.27	0.18	0.10	0.30	0.13	0.24	0.13	0.01	0.02	0.08	0.16	0.14	0.04	0.11	0.06	0.26
47	EMR	0.33	0.24	0.46	0.26	0.27	0.24	0.38	0.23	0.42	0.03	0.21	0.28	0.13	0.26	0.30	0.26	0.21	0.18	0.43
48	EMS	0.29	0.22	0.31	0.18	0.16	0.19	0.30	0.37	0.25	0.06	0.13	0.14	0.16	0.20	0.25	0.16	0.31	0.17	0.38

CORRELATIONAL STUDY : CA - [illegible] : CORRELATION MATRIX - SEMANTIC TESTS(CONTD)

		39 NMC	40 NMR	41 NMS	42 NMT	43 NMI	44 NMU(II)	45 EMU	46 EMC	47 EMR	48 EMS	49 EMT	50 EMI
1	AGE	-.08	-.21	-.05	-.02	-.26	-.07	-.15	-.18	-.41	-.12	0.09	0.25
2	SE1	0.16	0.22	0.16	0.23	0.25	0.16	0.03	0.02	0.24	0.25	0.10	0.05
3	PS1	0.12	0.24	0.14	0.23	0.23	0.14	0.24	0.18	0.40	0.20	0.17	0.28
4	PS2	0.12	0.03	0.16	0.14	0.27	0.12	0.21	0.04	0.26	0.20	0.14	0.25
5	SE2	0.19	0.25	0.20	0.22	0.41	0.21	0.12	0.11	0.42	0.24	0.19	0.21
6	SPM	0.27	0.29	0.22	0.14	0.30	0.16	0.18	0.14	0.33	0.28	0.17	0.13
7	RSP	0.17	0.24	0.19	0.12	0.33	0.23	0.21	0.23	0.32	0.31	0.05	0.31
8	SCO	0.17	0.25	0.18	0.19	0.26	0.24	0.11	0.10	0.31	0.30	0.14	0.22
9	WAR	0.16	0.19	0.15	0.19	0.28	0.10	0.18	0.15	0.32	0.22	0.12	0.25
10	LPE	0.07	0.03	0.02	0.06	0.16	0.04	0.08	0.02	0.26	0.24	0.20	0.15
11	JUD	0.13	0.14	0.04	0.03	0.06	0.00	0.04	0.16	0.25	0.20	0.06	0.06
12	ANA	0.24	0.37	0.21	0.27	0.33	0.21	0.24	0.27	0.48	0.41	0.10	0.29
13	VOC	0.25	0.35	0.24	0.20	0.37	0.24	0.18	0.20	0.36	0.40	0.12	0.24
14	MAR	0.19	0.27	0.19	0.10	0.24	0.12	0.20	0.31	0.30	0.40	0.07	0.31
15	JLA	0.20	0.32	0.24	0.15	0.37	0.16	0.22	0.33	0.43	0.44	0.10	0.34
16	SST	0.20	0.33	0.24	0.16	0.29	0.14	0.26	0.33	0.43	0.41	0.08	0.37
17	MAT	0.14	0.24	0.14	0.12	0.33	0.11	0.26	0.30	0.46	0.36	0.09	0.37
18	SCI	0.11	0.20	0.09	0.06	0.23	0.05	0.24	0.30	0.41	0.35	0.09	0.36
19	GTP	0.21	0.33	0.23	0.15	0.36	0.17	0.26	0.34	0.45	0.42	0.11	0.39
20	CMU	0.07	0.22	0.11	0.06	0.24	0.14	0.29	0.33	0.33	0.29	0.01	0.34
21	CMC	0.01	0.22	0.10	0.06	0.14	0.12	0.16	0.26	0.24	0.22	0.00	0.21
22	CMR	0.10	0.27	0.16	0.13	0.29	0.14	0.18	0.30	0.46	0.31	0.02	0.23
23	CMS	0.01	0.21	0.12	0.10	0.21	0.10	0.20	0.27	0.26	0.18	0.08	0.26
24	CMT	0.08	0.21	0.08	0.07	0.23	0.17	0.21	0.18	0.27	0.16	-.01	0.15
25	CMI	0.08	0.16	0.07	0.03	0.13	0.13	0.08	0.10	0.24	0.19	0.00	0.22
26	MMU	0.17	0.23	0.18	0.11	0.34	0.14	0.24	0.30	0.38	0.30	0.05	0.26
27	MMC	0.08	0.17	0.14	0.20	0.28	0.11	0.18	0.13	0.23	0.37	0.09	0.31
28	MMR	0.23	0.25	0.25	0.19	0.35	0.21	0.25	0.24	0.42	0.25	0.10	0.40
29	MMS	0.14	0.12	0.06	0.05	0.05	0.04	0.07	0.13	0.03	0.06	0.00	0.10
30	MMT	0.04	0.02	0.01	0.08	0.14	0.01	0.12	0.01	0.21	0.13	-.01	0.06
31	MMI	0.01	0.06	-.07	0.01	0.10	0.02	0.05	0.02	0.28	0.14	-.09	0.02
32	DMU	0.06	0.06	-.03	0.07	0.12	0.04	0.16	0.08	0.13	0.16	0.15	0.10
33	DMC	0.13	0.17	0.04	0.09	0.29	0.05	0.06	0.16	0.26	0.20	0.06	0.18
34	DMR	0.12	0.21	0.12	0.04	0.22	0.07	0.14	0.14	0.30	0.25	0.10	0.20
35	DMS	0.20	0.24	0.14	0.14	0.25	0.11	0.15	0.04	0.26	0.16	0.04	0.10
36	DMT	0.19	0.28	0.10	0.11	0.23	0.19	0.04	0.11	0.21	0.31	0.18	0.24
37	DMI	0.12	0.14	0.11	0.18	0.19	0.12	0.17	0.06	0.18	0.17	0.10	0.15
38	NMU(I)	0.46	0.68	0.45	0.46	0.59	0.58	0.23	0.26	0.43	0.38	0.00	0.38
39	NMC	1.00	0.60	0.63	0.48	0.54	0.63	0.28	0.03	0.15	0.19	0.13	0.13
40	NMR	0.60	1.00	0.75	0.61	0.61	0.77	0.21	0.14	0.21	0.25	0.06	0.23
41	NMS	0.63	0.75	1.00	0.69	0.59	0.80	0.15	0.14	0.12	0.18	0.11	0.16
42	NMT	0.48	0.61	0.69	1.00	0.47	0.67	0.11	0.04	0.14	0.18	0.06	0.14
43	NMI	0.54	0.61	0.59	0.47	1.00	0.57	0.18	0.11	0.29	0.30	0.07	0.35
44	NMU(II)	0.63	0.77	0.80	0.67	0.57	1.00	0.11	0.08	0.13	0.16	0.15	0.16
45	EMU	0.28	0.21	0.15	0.11	0.18	0.11	1.00	0.10	0.19	0.13	0.13	0.28
46	EMC	0.03	0.14	0.14	0.04	0.11	0.18	0.10	1.00	0.24	0.13	0.12	0.19
47	EMR	0.95	0.21	0.12	0.14	0.29	0.13	0.19	0.24	1.00	0.37	0.07	0.27
48	EMS	0.19	0.25	0.18	0.18	0.30	0.16	0.13	0.13	0.37	1.00	0.01	0.28
49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE : XVI - d

CORRELATIONAL STUDY : CA - 4 : CORRELATION MATRIX - COGNITION TESTS

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CFU	-.22	0.02	0.05	0.10	0.14	0.13	0.10	0.09	0.20	0.23	0.03	0.06	0.10	0.21	0.19	0.15	0.19	0.21	0.22
21	CFC	-.18	0.08	0.24	0.24	0.20	0.20	0.07	0.02	0.22	0.13	0.07	0.10	0.05	0.29	0.27	0.29	0.32	0.29	0.33
22	CFR	-.27	0.27	0.37	0.33	0.35	0.40	0.28	0.18	0.29	0.18	0.20	0.30	0.27	0.38	0.41	0.41	0.43	0.41	0.46
23	CFS	-.13	-.04	0.07	0.13	0.15	0.20	0.14	0.00	0.12	0.07	0.03	0.15	0.03	0.22	0.24	0.21	0.29	0.23	0.26
24	CFT	-.21	0.04	0.28	0.12	0.19	0.20	0.17	0.13	0.18	0.11	0.25	0.17	0.12	0.14	0.30	0.15	0.17	0.22	0.21
25	CFI	0.00	0.07	0.00	0.00	0.04	0.06	-.01	0.00	0.11	-.02	0.00	-.05	-.01	0.06	0.07	0.06	0.14	0.04	0.08
26	CSU	-.18	0.14	0.09	0.14	0.21	0.13	0.25	0.18	0.18	0.08	0.15	0.34	0.24	0.13	0.20	0.18	0.10	0.13	0.16
27	CSC	-.29	0.24	0.31	0.22	0.34	0.18	0.21	0.21	0.18	0.18	0.03	0.30	0.19	0.17	0.26	0.22	0.31	0.23	0.27
28	CSR	-.17	0.20	0.15	0.07	0.30	0.17	0.17	0.16	0.14	0.07	0.00	0.25	0.21	0.12	0.21	0.13	0.12	0.12	0.16
29	CSS	-.33	0.39	0.37	0.37	0.61	0.34	0.24	0.25	0.42	0.23	0.13	0.41	0.38	0.33	0.40	0.33	0.50	0.38	0.44
30	CST	-.19	0.24	0.25	0.24	0.30	0.10	0.36	0.34	0.23	0.22	0.13	0.36	0.34	0.32	0.35	0.34	0.30	0.27	0.33
31	CSI	-.10	0.08	0.13	0.10	0.17	0.14	0.23	0.08	0.18	0.10	0.16	0.20	0.16	[illegible]	0.14	0.11	0.16	0.10	0.16
32	CMU	-.26	0.06	0.30	0.20	0.14	0.15	0.39	0.29	0.26	0.14	0.16	0.40	0.39	[illegible]	0.39	0.36	0.34	0.31	0.36
33	CMC	-.14	0.11	0.24	0.15	0.10	0.11	0.21	0.22	0.17	0.14	0.15	0.33	0.28	[illegible]	0.33	0.27	0.32	0.23	0.31
34	CMR	-.32	0.20	0.35	0.28	0.26	0.28	0.32	0.27	0.32	0.20	0.22	0.45	0.37	[illegible]	0.41	0.36	0.38	0.35	0.41
35	CMS	-.30	0.16	0.18	0.23	0.26	0.15	0.28	0.20	0.21	0.20	0.03	0.32	0.26	[illegible]	0.33	0.32	0.33	0.30	0.34
36	CMT	-.14	0.10	0.15	0.11	0.13	0.07	0.28	0.24	0.08	0.07	0.02	0.31	0.25	0.14	0.19	0.22	0.23	0.15	0.20
37	CMI	-.13	0.20	0.18	0.15	0.19	0.14	0.13	0.26	0.08	0.18	0.08	0.29	0.23	0.19	0.21	0.24	0.22	0.17	0.23

....CONTD

CORRELATIONAL STUDY : CA - 4 : CORRELATION MATRIX - COGNITION TESTS(CONTD)

	20 CFU	21 CFC	22 CFR	23 CFS	24 CFT	25 CFI	26 CSU	27 CSC	28 CSR	29 CSS	30 CST	31 CSI	32 CMU	33 CMC	34 CMR	35 CMS	36 CMT	37 CMI
1 AGE	-.22	-.18	-.27	-.13	-.21	0.00	-.18	-.29	-.17	-.33	-.19	-.10	-.26	-.14	-.32	-.30	-.14	-.13
2 SC1	0.02	0.08	0.27	-.04	0.04	0.07	0.14	0.24	0.20	0.39	0.24	0.08	0.06	0.11	0.20	0.16	0.10	0.20
3 PS1	0.05	0.24	0.37	0.07	0.28	0.00	0.09	0.31	0.15	0.37	0.25	0.13	0.30	0.24	0.35	0.18	0.15	0.18
4 PS2	0.10	0.24	0.33	0.13	0.12	0.00	0.14	0.22	0.07	0.37	0.24	0.10	0.20	0.15	0.28	0.23	0.11	0.15
5 SE2	0.14	0.20	0.35	0.15	0.19	0.04	0.21	0.34	0.30	0.61	0.30	0.17	0.14	0.10	0.26	0.26	0.13	0.19
6 SFM	0.13	0.30	0.40	0.20	0.20	0.06	0.13	0.18	0.17	0.34	0.10	0.14	0.15	0.11	0.28	0.15	0.07	0.14
7 RSP	0.10	0.07	0.28	0.14	0.17	-.01	0.25	0.21	0.17	0.24	0.36	0.23	0.39	0.21	0.32	0.28	0.28	0.13
8 SCD	0.09	0.02	0.18	0.00	0.13	0.00	0.18	0.21	0.16	0.25	0.34	0.08	0.29	0.22	0.27	0.20	0.24	0.26
9 WAR	0.20	0.22	0.29	0.12	0.18	0.11	0.18	0.18	0.15	0.42	0.23	0.18	0.26	0.17	0.32	0.21	0.08	0.08
10 LPE	0.23	0.13	0.18	0.07	0.11	-.02	0.08	0.18	0.07	0.23	0.22	0.10	0.14	0.14	0.20	0.20	0.07	0.18
11 JUD	0.03	0.07	0.20	0.03	0.25	0.00	0.15	0.03	0.00	0.13	0.13	0.16	0.16	0.15	0.22	0.03	0.02	0.08
12 ANA	0.06	0.10	0.30	0.15	0.17	-.05	0.34	0.30	0.25	0.41	0.36	0.20	0.04	0.33	0.45	0.32	0.31	0.29
13 VOC	0.10	0.05	0.27	0.03	0.12	-.01	0.24	0.19	0.21	0.38	0.34	0.16	0.39	0.28	0.37	0.26	0.25	0.23
14 MAR	0.21	0.29	0.38	0.22	0.14	0.06	0.13	0.17	0.12	0.33	0.32	0.11	0.29	0.22	0.29	0.26	0.14	0.19
15 OLA	0.19	0.27	0.41	0.24	0.20	0.07	0.20	0.26	0.21	0.40	0.35	0.14	0.39	0.33	0.41	0.33	0.19	0.21
16 SST	0.15	0.29	0.41	0.21	0.15	0.06	0.18	0.22	0.13	0.33	0.34	0.11	0.36	0.27	0.36	0.32	0.22	0.24
17 MAT	0.19	0.32	0.43	0.29	0.17	0.14	0.10	0.31	0.12	0.50	0.30	0.16	0.34	0.32	0.38	0.33	0.23	0.22
18 SCI	0.21	0.29	0.41	0.23	0.22	0.04	0.13	0.23	0.12	0.38	0.27	0.10	0.31	0.23	0.35	0.30	0.15	0.17
19 GTP	0.22	0.33	0.46	0.26	0.21	0.08	0.16	0.27	0.16	0.44	0.33	0.16	0.36	0.31	0.41	0.34	0.20	0.23
20 CFU	1.00	0.19	0.13	0.31	0.08	0.18	0.12	0.15	0.19	0.15	0.16	0.18	0.04	0.18	0.26	0.24	0.03	0.11
21 CFC	0.19	1.00	0.21	0.21	0.12	0.14	0.02	0.18	0.13	0.17	0.04	0.16	0.01	0.06	0.13	0.09	0.18	0.02
22 CFR	0.13	0.21	1.00	0.30	0.32	0.06	0.15	0.21	0.19	0.47	0.24	0.22	0.30	0.16	0.38	0.25	0.08	0.22
23 CFS	0.31	0.21	0.30	1.00	0.21	0.13	0.06	0.15	0.08	0.22	0.13	0.15	0.17	0.17	0.25	0.17	0.14	0.15
24 CFT	0.08	0.12	0.32	0.21	1.00	-.09	0.10	0.10	0.04	0.16	0.11	0.08	0.22	0.11	0.32	0.11	0.04	0.13
25 CFI	0.18	0.14	0.06	0.13	-.09	1.00	0.18	0.01	0.12	0.03	0.05	0.02	0.04	0.00	0.01	0.09	0.01	0.05
26 CSU	0.12	0.00	0.00	0.00	0.00	0.00	1.00	0.43	0.62	0.40	0.51	0.31	0.17	0.24	0.30	0.02	0.15	0.07
27 CSC	0.00	0.18	0.00	0.00	0.00	0.00	0.43	1.00	0.47	0.46	0.43	0.25	0.11	0.22	0.22	0.23	0.21	0.23
28 CSR	0.00	0.00	0.19	0.00	0.00	0.00	0.62	0.47	1.00	0.43	0.43	0.36	0.10	0.13	0.24	0.07	0.05	0.11
29 CSS	0.00	0.00	0.00	0.22	0.00	0.00	0.40	0.46	0.43	1.00	0.54	0.39	0.23	0.20	0.36	0.27	0.14	0.14
30 CST	0.00	0.00	0.00	0.00	0.11	0.00	0.51	0.43	0.43	0.54	1.00	0.35	0.26	0.31	0.34	0.18	0.21	0.17
31 CSI	0.00	0.00	0.00	0.00	0.00	0.02	0.31	0.25	0.36	0.39	0.35	1.00	0.11	0.16	0.23	0.18	0.09	0.04
32 CMU	0.04	0.01	0.30	0.17	0.22	0.04	0.17	0.11	0.10	0.23	0.26	0.11	1.00	0.53	0.54	0.49	0.51	0.26
33 CMC	0.18	0.06	0.16	0.17	0.11	0.00	0.24	0.22	0.13	0.20	0.31	0.16	0.53	1.00	0.49	0.45	0.44	0.20
34 CMR	0.26	0.13	0.38	0.25	0.22	0.01	0.30	0.22	0.24	0.36	0.34	0.23	0.55	0.49	1.00	0.43	0.42	0.31
35 CMS	0.24	0.09	0.25	0.17	0.11	0.09	0.02	0.23	0.07	0.27	0.18	0.18	0.49	0.45	0.43	1.00	0.47	0.34
36 CMT	0.03	0.02	0.08	0.14	0.04	0.01	0.15	0.21	0.05	0.14	0.21	0.09	0.51	0.44	0.42	0.47	1.00	0.41
37 CMI	0.11	0.02	0.22	0.15	0.13	0.05	0.07	0.23	0.11	0.14	0.17	0.04	0.26	0.20	0.31	0.34	0.41	1.00

TABLE : XVI - e

LONGITUDINAL STUDY : [illegible] : CORRELATION MATRIX - MEMORY

		1 AGE	2 SE1	3 FS1	4 FS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LFE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	FS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	FS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LFE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	MFU	0.03	0.17	0.01	0.00	0.08	0.09	0.05	0.01	0.03	-.04	-.03	0.06	-.02	-.02	0.01	0.01	-.03	-.04	0.02
21	MFC	-.02	0.15	0.08	0.05	0.14	0.15	0.14	0.04	0.13	0.05	0.02	0.11	0.02	0.06	0.13	0.13	0.09	0.08	0.15
22	MFR	-.09	0.02	0.03	0.02	0.11	0.12	0.05	0.00	0.16	0.03	0.06	0.04	0.08	0.01	0.05	0.02	0.05	0.05	0.06
23	MFS	-.06	-.04	0.04	0.04	0.07	0.15	0.10	-.02	0.05	-.06	0.02	0.07	0.06	-.02	0.03	0.04	-.01	-.04	0.04
24	MFT	-.08	0.16	0.09	0.05	0.15	0.21	0.02	0.02	0.12	-.06	-.02	0.14	0.08	0.06	0.10	0.13	0.05	0.03	0.10
25	MFI	-.06	0.09	0.04	0.04	0.14	0.43	0.08	0.01	0.04	-.04	-.03	0.15	0.04	0.01	0.07	0.07	0.03	-.01	0.07
26	MSU	-.24	0.22	0.17	0.23	0.29	0.18	0.18	0.25	0.12	0.25	0.06	0.30	0.23	0.22	0.24	0.27	0.20	0.21	0.27
27	MSC	-.11	0.15	0.18	0.22	0.18	0.11	0.20	0.19	0.10	0.26	0.10	0.24	0.19	0.18	0.27	0.20	0.18	0.15	0.22
28	MSR	-.08	0.06	0.20	-.02	0.19	0.03	0.10	0.13	0.11	0.16	0.07	0.23	0.12	0.09	0.09	0.10	0.13	0.11	0.12
29	MSS	0.00	0.22	0.18	0.23	0.23	0.18	0.03	0.26	0.07	0.26	0.04	0.13	0.16	0.15	0.12	0.14	0.18	0.14	0.17
30	MST	-.11	0.15	0.22	0.14	0.34	0.22	0.22	0.14	0.18	0.23	0.06	0.22	0.13	0.14	0.17	0.23	0.27	0.21	0.25
31	MSI	-.03	0.17	0.12	0.12	0.09	0.08	0.01	0.10	0.08	0.13	0.07	0.13	0.05	0.09	0.09	0.12	0.13	0.10	0.12
32	MMU	-.36	0.07	0.30	0.27	0.19	0.23	0.37	0.30	0.34	0.26	0.21	0.33	0.33	0.36	0.40	0.36	0.29	0.33	0.39
33	MMC	-.22	0.07	0.24	0.27	0.21	0.20	0.22	0.21	0.25	0.15	0.18	0.29	0.26	0.29	0.33	0.34	0.26	0.25	0.34
34	MMR	-.25	0.25	0.39	0.28	0.37	0.27	0.29	0.35	0.37	0.16	0.27	0.37	0.34	0.33	0.40	0.39	0.43	0.37	0.44
35	MMS	-.05	0.12	0.12	0.07	0.10	0.12	0.08	0.11	0.11	0.05	0.07	0.14	0.12	0.18	0.16	0.15	0.09	0.11	0.14
36	MMT	-.23	0.06	0.09	0.03	0.13	0.07	0.01	0.10	0.07	0.12	-.03	0.16	0.07	0.08	0.10	0.07	0.13	0.09	0.12
37	MHI	-.23	0.11	0.08	0.09	0.15	0.06	0.06	0.09	0.08	0.20	0.02	0.14	0.06	0.11	0.16	0.15	0.19	0.13	0.18

....CONTD

CORRELATIONAL STUDY : C4 - 5 : CORRELATION MATRIX - MEMORY(CONTD)

		20 MFU	21 MFC	22 MFR	23 MFS	24 MFT	25 MFI	26 MSU	27 MSC	28 MSR	29 MSS	30 MST	31 MSI	32 MMU	33 MMC	34 MMR	35 MMS	36 MMT	37 MMI
1	AGE	0.03	-.02	-.09	-.06	-.08	-.06	-.24	-.11	-.08	0.00	-.11	-.03	-.36	-.22	-.25	-.05	-.23	-.23
2	SE1	0.17	0.15	0.02	-.04	0.16	0.09	0.22	0.15	0.06	0.22	0.15	0.17	0.07	0.07	0.25	0.12	0.06	0.11
3	PS1	0.01	0.08	0.03	0.04	0.09	0.04	0.17	0.18	0.20	0.18	0.22	0.13	0.30	0.14	0.39	0.12	0.09	0.08
4	PS2	0.00	0.05	0.02	0.04	0.05	0.04	0.23	0.22	-.02	0.23	0.14	0.12	0.27	0.27	0.28	0.07	0.03	0.09
5	SE2	0.08	0.14	0.11	0.07	0.15	0.14	0.29	0.18	0.19	0.23	0.34	0.09	0.19	0.21	0.37	0.10	0.13	0.15
6	SFM	0.09	0.15	0.12	0.15	0.21	0.13	0.18	0.11	0.03	0.18	0.22	0.08	0.23	0.20	0.27	0.12	0.07	0.06
7	RSP	0.05	0.14	0.05	0.10	0.02	0.08	0.18	0.20	0.10	0.03	0.22	0.01	0.37	0.22	0.29	0.08	0.01	0.06
8	SCO	0.01	0.04	0.00	-.02	0.02	0.01	0.25	0.19	0.13	0.26	0.14	0.10	0.30	0.21	0.35	0.11	0.10	0.09
9	WAR	0.03	0.13	0.16	0.05	0.12	0.04	0.12	0.10	0.11	0.07	0.18	0.08	0.34	0.25	0.37	0.11	0.07	0.08
10	LPE	-.04	0.05	0.03	-.06	-.56	-.04	0.25	0.26	0.16	0.26	0.23	0.13	0.26	0.15	0.16	0.05	0.12	0.20
11	JUD	-.03	0.02	0.06	0.02	-.02	-.03	0.06	0.10	0.07	0.04	0.06	0.07	0.21	0.18	0.27	0.07	-.03	0.02
12	ANA	0.06	0.11	0.04	0.07	0.14	0.15	0.30	0.24	0.23	0.13	0.22	0.13	0.33	0.29	0.37	0.14	0.16	0.14
13	VOC	-.02	0.02	0.08	0.06	0.08	0.04	0.23	0.19	0.12	0.16	0.13	0.05	0.33	0.26	0.34	0.12	0.07	0.06
14	MAR	-.02	0.06	0.01	-.02	0.06	0.01	0.22	0.18	0.09	0.15	0.14	0.09	0.36	0.29	0.33	0.18	0.08	0.11
15	OLA	0.01	0.13	0.05	0.03	0.10	0.07	0.24	0.27	0.09	0.12	0.17	0.09	0.40	0.33	0.40	0.16	0.10	0.16
16	SST	0.01	0.13	0.02	0.04	0.13	0.07	0.27	0.20	0.10	0.14	0.23	0.12	0.36	0.34	0.39	0.15	0.07	0.15
17	MAT	-.03	0.09	0.05	-.01	0.05	0.03	0.20	0.18	0.13	0.18	0.27	0.13	0.29	0.26	0.43	0.09	0.13	0.19
18	SCI	-.04	0.08	0.05	-.04	0.03	-.01	0.21	0.15	0.11	0.14	0.21	0.10	0.33	0.25	0.37	0.11	0.09	0.13
19	GTP	0.02	0.15	0.06	0.04	0.10	0.07	0.27	0.22	0.12	0.17	0.25	0.12	0.39	0.34	0.44	0.14	0.12	0.18
20	MFU	1.00	0.70	0.43	0.66	0.71	0.74	0.01	0.00	0.01	0.05	0.04	0.06	-.03	0.03	0.12	0.03	0.02	0.08
21	MFC	0.70	1.00	0.33	0.63	0.62	0.63	0.02	0.09	0.01	0.04	0.15	0.05	0.08	0.11	0.14	0.08	0.03	0.08
22	MFR	0.43	0.33	1.00	0.43	0.44	0.41	0.05	0.02	0.10	0.03	0.07	0.03	0.11	0.03	0.13	0.01	0.08	0.01
23	MFS	0.66	0.63	0.43	1.00	0.67	0.75	0.02	0.05	0.04	0.01	0.08	0.10	0.03	0.03	0.11	0.04	0.06	0.05
24	MFT	0.71	0.62	0.44	0.67	1.00	0.76	0.02	0.01	0.08	0.07	0.09	0.04	0.00	0.01	0.15	0.15	-.05	0.07
25	MFI	0.74	0.63	0.41	0.75	0.76	1.00	0.10	0.09	0.01	0.08	0.15	-.01	0.00	0.06	0.09	0.13	0.02	-.03
26	MSU	-.01	0.02	0.05	0.02	0.02	0.10	1.00	0.35	0.05	0.38	0.39	0.30	0.17	0.27	0.23	0.10	0.19	0.32
27	MSC	0.00	0.09	0.02	0.05	0.01	0.09	0.35	1.00	0.13	0.28	0.41	0.45	0.31	0.30	0.14	0.05	0.23	0.36
28	MSR	0.01	0.01	0.10	0.04	0.08	0.01	0.05	0.13	1.00	0.14	0.32	0.15	0.17	0.05	0.16	0.10	0.19	0.15
29	MSS	0.05	0.04	0.03	0.01	0.07	0.08	0.38	0.28	0.14	1.00	0.28	0.29	0.01	0.04	0.17	0.07	0.03	0.15
30	MST	0.04	0.15	0.07	0.08	0.09	0.15	0.39	0.41	0.32	0.28	1.00	0.40	0.25	0.29	0.24	0.09	0.29	0.33
31	MSI	0.06	0.05	0.03	0.10	0.04	-.01	0.30	0.45	0.15	0.29	0.40	1.00	0.10	0.17	0.12	0.04	0.21	0.35
32	MMU	-.03	0.08	0.11	0.03	0.00	0.00	0.17	0.31	0.17	0.01	0.25	0.10	1.00	0.56	0.32	0.23	0.33	0.23
33	MMC	-.03	0.11	-.03	-.03	-.01	0.06	0.27	0.30	0.05	0.04	0.09	0.17	0.56	1.00	0.30	0.11	0.35	0.23
34	MMR	0.12	0.14	0.13	0.11	0.15	0.09	0.23	0.13	0.16	0.17	0.24	0.12	0.32	0.30	1.00	0.15	0.17	0.22
35	MMS	0.03	0.08	0.01	0.04	0.15	0.13	0.10	0.05	0.10	0.07	0.09	0.04	0.20	0.11	0.15	1.00	0.03	-.05
36	MMT	-.02	-.03	0.08	-.06	-.05	0.02	0.19	0.23	0.19	0.03	0.29	0.21	0.33	0.35	0.17	0.03	1.00	0.42
37	MMI	-.08	0.08	0.01	-.05	-.07	-.03	0.32	0.36	0.15	0.15	0.33	0.35	0.23	0.23	0.22	-.05	0.42	1.00

TABLE : XVI - f

CORRELATIONAL STUDY : CA - 6 : CORRELATION MATRIX - DIVERGENT

		1 AGE	2 SE1	3 FS1	4 FS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LFE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	FS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	FS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LFE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	DFU	-.20	0.04	0.02	0.05	0.10	0.14	0.05	0.15	0.12	0.09	0.05	0.13	0.10	0.08	0.17	0.11	0.14	0.07	0.15
21	DFC	0.06	0.15	0.12	0.10	0.17	0.13	0.19	0.19	0.18	0.10	0.08	0.16	0.21	0.19	0.20	0.21	0.21	0.19	0.21
22	DFR	-.14	0.18	0.25	0.11	0.16	0.05	0.10	0.28	0.17	0.18	0.04	0.26	0.26	0.13	0.19	0.20	0.27	0.15	0.20
23	DFS	-.18	0.05	0.13	0.12	0.14	0.14	0.15	0.14	0.22	0.15	0.11	0.15	0.11	0.15	0.22	0.22	0.22	0.18	0.23
24	DFT	-.14	0.03	0.15	0.15	0.17	0.25	0.15	0.15	0.24	0.14	0.16	0.19	0.18	0.17	0.25	0.22	0.20	0.19	0.26
25	DFI	-.07	-.06	0.08	-.03	0.03	-.02	0.13	0.02	0.10	0.02	0.04	0.19	0.12	0.13	0.12	0.15	0.13	0.15	0.14
26	DSU	-.05	0.18	0.01	0.12	0.09	-.05	0.06	0.27	0.12	0.18	-.12	0.11	0.13	0.08	0.04	0.04	0.01	0.04	0.04
27	DSC.	-.14	0.38	0.41	0.35	0.46	0.33	0.33	0.26	0.38	0.27	0.18	0.40	0.34	0.36	0.42	0.45	0.56	0.48	0.49
28	DSR	-.21	0.37	0.33	0.26	0.35	0.29	0.32	0.21	0.25	0.21	0.08	0.31	0.19	0.34	0.40	0.42	0.46	0.39	0.46
29	DSS	-.04	0.34	0.31	0.29	0.36	0.22	0.22	0.27	0.22	0.23	0.10	0.32	0.29	0.38	0.42	0.42	0.47	0.43	0.46
30	DST	-.24	0.08	0.21	0.16	0.16	0.13	0.09	0.10	0.03	0.20	0.00	0.16	0.15	0.19	0.24	0.17	0.23	0.19	0.23
31	DSI	-.09	0.11	0.28	0.16	0.28	0.15	0.31	0.15	0.15	0.17	0.06	0.25	0.23	0.26	0.35	0.32	0.42	0.36	0.39
32	DMU	-.14	0.14	0.08	0.06	0.22	0.06	0.16	0.20	0.15	0.12	-.01	0.11	0.09	0.16	0.16	0.16	0.12	0.13	0.15
33	DMC	-.22	0.17	0.14	0.18	0.23	0.15	0.25	0.20	0.19	0.14	0.08	0.24	0.22	0.34	0.36	0.36	0.28	0.31	0.37
34	DMR	-.11	0.21	0.28	0.19	0.31	0.25	0.26	0.23	0.23	0.16	0.19	0.24	0.27	0.31	0.35	0.37	0.36	0.29	0.37
35	DMS	-.13	0.21	0.23	0.20	0.29	0.21	0.24	0.18	0.19	0.19	0.05	0.21	0.28	0.34	0.40	0.33	0.36	0.37	0.39
36	DMT	-.10	0.20	0.23	0.17	0.21	0.17	0.38	0.29	0.19	0.14	0.20	0.27	0.24	0.33	0.36	0.38	0.33	0.35	0.39
37	DMI	-.11	0.16	0.16	0.13	0.23	0.08	0.24	0.23	0.14	0.15	0.03	0.19	0.14	0.30	0.22	0.32	0.19	0.23	0.26

....CONTD

CORRELATIONAL STUDY : CA - 6 : CORRELATION MATRIX - DIVERGENT(CONTD)

		20 DFU	21 DFC	22 DFR	23 DFS	24 DFT	25 DFI	26 DSU	27 DSC	28 DSR	29 DSS	30 DST	31 DSI	32 DMU	33 DMC	34 DMR	35 DMS	36 DMT	37 DMI
1	AGE	-.20	0.06	-.14	-.18	-.14	-.07	-.05	-.14	-.21	-.04	-.24	-.09	-.14	-.22	-.11	-.13	-.10	-.11
2	SE1	0.04	0.15	0.18	0.05	0.03	-.06	0.18	0.38	0.37	0.34	0.08	0.11	0.14	0.17	0.21	0.21	0.20	0.16
3	PS1	0.02	0.12	0.25	0.13	0.15	0.08	0.01	0.41	0.33	0.31	0.21	0.28	0.08	0.14	0.28	0.23	0.23	0.16
4	PS2	0.05	0.10	0.11	0.12	0.15	-.03	0.12	0.35	0.26	0.29	0.16	0.16	0.06	0.18	0.19	0.20	0.17	0.13
5	SE2	0.10	0.17	0.16	0.14	0.17	0.03	0.89	0.46	0.35	0.36	0.16	0.28	0.22	0.23	0.31	0.29	0.21	0.23
6	SPM	0.14	0.13	0.05	0.14	0.25	-.02	-.05	0.33	0.29	0.22	0.13	0.15	0.06	0.15	0.25	0.21	0.17	0.08
7	RSP	0.05	0.19	0.10	0.15	0.15	0.13	0.06	0.33	0.32	0.22	0.09	0.31	0.16	0.25	0.26	0.24	0.38	0.24
8	SCO	0.15	0.19	0.28	0.14	0.15	0.02	0.27	0.26	0.21	0.27	0.10	0.15	0.20	0.20	0.23	0.18	0.29	0.23
9	WAR	0.12	0.18	0.17	0.22	0.24	0.10	0.12	0.38	0.25	0.22	0.03	0.15	0.15	0.19	0.23	0.19	0.19	0.14
10	LPE	0.09	0.10	0.18	0.15	0.14	0.02	0.18	0.27	0.21	0.23	0.20	0.17	0.12	0.14	0.16	0.19	0.14	0.15
11	JUD	0.05	0.08	0.04	0.11	0.16	0.04	-.12	0.18	0.08	0.10	0.00	0.06	-.01	0.08	0.19	0.05	0.20	0.03
12	ANA	0.13	0.16	0.26	0.15	0.19	0.19	0.11	0.40	0.31	0.32	0.16	0.25	0.11	0.24	0.24	0.21	0.27	0.19
13	VOC	0.10	0.21	0.26	0.11	0.18	0.12	0.13	0.34	0.19	0.29	0.15	0.23	0.09	0.22	0.27	0.28	0.24	0.14
14	MAR	0.08	0.19	0.13	0.15	0.17	0.13	0.08	0.36	0.34	0.38	0.19	0.26	0.16	0.34	0.31	0.34	0.35	0.30
15	DLA	0.17	0.20	0.19	0.22	0.25	0.12	0.04	0.42	0.40	0.42	0.24	0.35	0.16	0.36	0.35	0.40	0.36	0.22
16	SST	0.11	0.21	0.20	0.22	0.22	0.15	0.04	0.45	0.42	0.42	0.17	0.32	0.16	0.36	0.37	0.33	0.38	0.32
17	MAT	0.14	0.21	0.27	0.22	0.20	0.13	0.01	0.56	0.46	0.47	0.23	0.42	0.12	0.28	0.36	0.36	0.33	0.19
18	SCI	0.07	0.19	0.15	0.18	0.19	0.15	0.04	0.48	0.39	0.43	0.19	0.36	0.13	0.31	0.29	0.37	0.35	0.23
19	GTP	0.15	0.21	0.20	0.23	0.26	0.14	0.04	0.49	0.46	0.46	0.23	0.39	0.15	0.37	0.37	0.39	0.39	0.26
20	DFU	1.00	0.33	0.25	0.43	0.40	0.16	0.30	0.06	0.17	0.06	0.18	0.16	0.35	0.26	0.39	0.15	0.19	0.26
21	DFC	0.33	1.00	0.32	0.38	0.18	0.17	0.14	0.16	0.18	0.23	0.16	0.11	0.29	0.23	0.36	0.15	0.28	0.23
22	DFR	0.25	0.32	1.00	0.27	0.01	0.21	0.31	0.18	0.13	0.19	0.10	0.16	0.26	0.22	0.35	0.14	0.21	0.29
23	DFS	0.43	0.38	0.27	1.00	0.28	0.27	0.12	0.22	0.19	0.21	0.05	0.13	0.23	0.17	0.28	0.12	0.26	0.16
24	DFT	0.40	0.18	0.01	0.28	1.00	0.00	-.01	0.15	0.21	0.14	0.12	0.17	0.10	0.16	0.22	0.19	0.05	0.18
25	DFI	0.16	0.17	0.21	0.27	0.00	1.00	0.12	0.14	0.10	0.00	0.05	0.17	0.19	0.14	0.07	0.09	0.28	0.10
26	DSU	0.30	0.14	0.31	0.12	0.01	0.12	1.00	0.09	0.07	0.02	0.18	0.02	0.26	0.14	0.16	0.08	0.10	0.15
27	DSC	0.06	0.16	0.18	0.22	0.15	0.14	0.09	1.00	0.60	0.41	0.17	0.35	0.23	0.26	0.40	0.36	0.36	0.26
28	DSR	0.17	0.18	0.13	0.19	0.21	0.10	0.07	0.60	1.00	0.45	0.24	0.41	0.31	0.33	0.34	0.33	0.35	0.29
29	DSS	0.06	0.23	0.19	0.21	0.14	0.00	0.02	0.41	0.45	1.00	0.16	0.31	0.17	0.17	0.24	0.29	0.28	0.17
30	DST	0.18	0.16	0.10	0.05	0.12	0.05	0.18	0.17	0.24	0.16	1.00	0.22	0.02	0.10	0.04	0.18	0.11	0.09
31	DSI	0.16	0.11	0.16	0.13	0.17	0.17	0.02	0.35	0.41	0.31	0.22	1.00	0.24	0.18	0.30	0.38	0.26	0.22
32	DMU	0.35	0.29	0.26	0.23	0.10	0.19	0.26	0.23	0.31	0.17	0.02	0.24	1.00	0.45	0.46	0.25	0.38	0.44
33	DMC	0.26	0.23	0.22	0.17	0.16	0.14	0.14	0.26	0.33	0.17	0.10	0.18	0.45	1.00	0.34	0.34	0.30	0.37
34	DMR	0.39	0.36	0.35	0.28	0.22	0.07	0.16	0.40	0.34	0.24	0.04	0.30	0.46	0.34	1.00	0.42	0.43	0.52
35	DMS	0.15	0.15	0.14	0.12	0.19	0.09	0.08	0.36	0.33	0.29	0.18	0.38	0.25	0.34	0.42	1.00	0.36	0.33
36	DMT	0.19	0.28	0.21	0.26	0.05	0.28	0.10	0.36	0.35	0.28	0.11	0.26	0.38	0.30	0.43	0.36	1.00	0.44
37	DMI	0.26	0.23	0.29	0.16	0.18	0.10	0.15	0.26	0.29	0.17	0.09	0.22	0.44	0.37	0.52	0.33	0.44	1.00

TABLE : XVI - g

CORRELATIONAL STUDY : CA - 7 : CORRELATION MATRIX - CONVERGENT

		1 AGE	2 SE1	3 FS1	4 FS2	5 SE2	6 SFM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	FS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	FS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SFM	-.16	0.41	0.54	0.43	0.40	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LFE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	NFU	-.12	0.17	0.18	0.12	0.23	0.08	0.16	0.17	0.13	0.17	-.08	0.15	0.07	0.16	0.18	0.20	0.21	0.16	0.21
21	NFC	-.10	0.22	0.10	0.08	0.19	0.12	0.17	0.12	0.14	0.19	0.12	0.17	0.11	0.07	0.13	0.06	0.13	0.09	0.09
22	NFR	-.26	0.16	0.40	0.29	0.33	0.35	0.24	0.26	0.37	0.24	0.24	0.36	0.31	0.29	0.42	0.38	0.44	0.39	0.45
23	NFS	-.03	0.15	0.14	0.14	0.17	0.21	0.10	0.18	0.25	0.21	0.09	0.17	0.11	0.07	0.17	0.09	0.17	0.13	0.16
24	NFT	-.01	0.03	0.24	0.26	0.20	0.23	0.16	0.20	0.20	0.22	0.06	0.17	0.16	0.21	0.20	0.24	0.31	0.28	0.28
25	NFI	-.19	0.19	0.35	0.32	0.31	0.25	0.28	0.22	0.33	0.18	0.13	0.29	0.20	0.32	0.38	0.36	0.43	0.38	0.43
26	NSU	-.22	0.24	0.24	0.27	0.39	0.28	0.18	0.23	0.22	0.17	0.04	0.29	0.26	0.36	0.44	0.34	0.49	0.40	0.45
27	NSC	-.15	0.25	0.27	0.24	0.31	0.18	0.12	0.17	0.22	0.19	0.08	0.19	0.21	0.33	0.35	0.34	0.45	0.37	0.42
28	NSR	-.09	0.35	0.34	0.20	0.26	0.15	0.16	0.18	0.17	0.26	0.00	0.24	0.22	0.30	0.31	0.28	0.38	0.32	0.35
29	NSS	-.22	0.34	0.29	0.27	0.34	0.23	0.12	0.22	0.24	0.21	0.04	0.25	0.18	0.34	0.38	0.35	0.42	0.37	0.41
30	NST	-.10	0.14	0.10	0.14	0.22	0.07	0.14	0.17	0.14	0.33	-.02	0.18	0.20	0.22	0.21	0.22	0.21	0.19	0.21
31	NSI	-.18	0.19	0.37	0.26	0.34	0.26	0.18	0.21	0.30	0.17	0.03	0.26	0.21	0.38	0.44	0.44	0.49	0.45	0.49
32	NMU(I)	-.26	0.28	0.43	0.32	0.31	0.26	0.47	0.46	0.35	0.20	0.21	0.46	0.52	0.38	0.46	0.46	0.41	0.36	0.46
33	NMC	-.08	0.16	0.12	0.12	0.19	0.27	0.17	0.17	0.16	0.07	0.13	0.24	0.25	0.19	0.20	0.20	0.14	0.11	0.21
34	NMR	-.21	0.22	0.24	0.23	0.25	0.29	0.24	0.25	0.19	0.03	0.14	0.37	0.35	0.27	0.32	0.33	0.24	0.20	0.33
35	NMS	-.05	0.16	0.14	0.16	0.20	0.22	0.19	0.18	0.15	0.15	0.04	0.21	0.24	0.19	0.24	0.24	0.14	0.09	0.23
36	NMT	-.02	0.23	0.23	0.14	0.22	0.14	0.12	0.19	0.19	0.06	0.03	0.27	0.20	0.10	0.15	0.16	0.12	0.06	0.15
37	NMI	-.26	0.25	0.33	0.27	0.41	0.30	0.33	0.26	0.28	0.16	0.06	0.33	0.37	0.24	0.37	0.29	0.33	0.23	0.36
38	NMU(II)	-.07	0.16	0.14	0.12	0.21	0.12	0.23	0.24	0.10	0.04	0.00	0.21	0.24	0.12	0.16	0.14	0.11	0.05	0.17

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CORRELATIONAL STUDY : CA - 7 : CORRELATION MATRIX - CONVERGENT(CONTD)

		20 NFU	21 NFC	22 NFR	23 NFS	24 NFT	25 NFI	26 NSU	27 NSC	28 NSR	29 NSS	30 NST	31 NSI	32 NMU(I)	33 NMC	34 NMR	35 NMS	36 NMT	37 NMI	38 NMU(II)
1	AGE	-.12	-.10	-.26	-.03	-.01	-.19	-.22	-.15	-.09	-.22	-.10	-.18	-.26	-.08	-.21	-.05	-.02	-.26	-.07
2	SEI	0.17	0.22	0.16	0.15	0.03	0.19	0.24	0.25	0.35	0.34	0.14	0.19	0.28	0.16	0.22	0.16	0.23	0.25	0.16
3	PS1	0.18	0.10	0.40	0.14	0.24	0.35	0.24	0.27	0.34	0.29	0.10	0.37	0.43	0.12	0.24	0.14	0.23	0.23	0.14
4	FS2	0.12	0.08	0.29	0.14	0.26	0.32	0.27	0.24	0.20	0.27	0.14	0.26	0.32	0.12	0.03	0.16	0.14	0.27	0.12
5	SC2	0.23	0.19	0.33	0.17	0.20	0.31	0.39	0.31	0.26	0.34	0.22	0.34	0.31	0.19	0.25	0.20	0.22	0.41	0.21
6	SPM	0.08	0.12	0.35	0.21	0.23	0.25	0.28	0.18	0.15	0.23	0.07	0.24	0.26	0.27	0.29	0.22	0.14	0.30	0.16
7	RSP	0.16	0.17	0.24	0.10	0.16	0.28	0.18	0.12	0.16	0.12	0.14	0.18	0.47	0.17	0.24	0.19	0.12	0.33	0.23
8	SCO	0.17	0.12	0.26	0.18	0.20	0.22	0.23	0.17	0.18	0.22	0.17	0.21	0.46	0.17	0.25	0.18	0.19	0.26	0.24
9	VAR	0.13	0.14	0.37	0.25	0.20	0.33	0.22	0.22	0.17	0.24	0.14	0.30	0.35	0.16	0.19	0.15	0.19	0.28	0.10
10	LFE	0.17	0.19	0.24	0.21	0.22	0.18	0.17	0.19	0.26	0.21	0.33	0.17	0.20	0.07	0.03	0.02	0.06	0.16	0.04
11	JUD	-.08	0.12	0.24	0.09	0.06	0.13	0.04	0.08	0.00	0.04	-.02	0.03	0.21	0.13	0.14	0.04	0.03	0.06	0.00
12	ANA	0.15	0.17	0.36	0.17	0.17	0.29	0.29	0.19	0.24	0.25	0.18	0.26	0.46	0.24	0.37	0.21	0.27	0.33	0.21
13	VOC	0.07	0.11	0.31	0.11	0.17	0.20	0.26	0.21	0.22	0.18	0.20	0.21	0.52	0.25	0.35	0.24	0.20	0.37	0.24
14	MAR	0.16	0.07	0.29	0.07	0.21	0.32	0.36	0.33	0.30	0.35	0.22	0.38	0.38	0.19	0.27	0.19	0.10	0.24	0.12
15	OLA	0.18	0.13	0.42	0.17	0.20	0.38	0.44	0.35	0.31	0.38	0.21	0.44	0.46	0.20	0.32	0.24	0.15	0.37	0.16
16	SST	0.20	0.06	0.38	0.09	0.20	0.36	0.34	0.34	0.28	0.35	0.22	0.44	0.46	0.20	0.33	0.24	0.16	0.29	0.14
17	MAT	0.21	0.13	0.44	0.17	0.31	0.43	0.49	0.45	0.38	0.42	0.21	0.49	0.41	0.14	0.24	0.14	0.12	0.33	0.11
18	SCI	0.16	0.09	0.39	0.13	0.28	0.38	0.40	0.37	0.32	0.37	0.19	0.45	0.36	0.11	0.20	0.09	0.06	0.23	0.05
19	GTP	0.21	0.09	0.45	0.16	0.28	0.43	0.45	0.42	0.35	0.41	0.21	0.49	0.46	0.21	0.33	0.23	0.15	0.38	0.17
20	NFU	1.00	0.12	0.22	0.33	0.32	0.24	0.15	0.25	0.29	0.20	0.25	0.16	0.21	0.13	0.09	0.13	0.18	0.16	0.18
21	NFC	0.12	1.00	0.18	0.19	0.15	0.12	0.13	0.21	0.22	0.16	0.14	0.15	0.08	0.04	-.04	-.03	-.07	0.14	-.03
22	NFR	0.22	0.18	1.00	0.35	0.41	0.37	0.38	0.43	0.23	0.26	0.24	0.37	0.33	0.27	0.27	0.16	0.16	0.33	0.09
23	NFS	0.33	0.19	0.35	1.00	0.49	0.31	0.25	0.15	0.20	0.25	0.18	0.17	0.15	0.17	0.17	0.22	0.15	0.20	0.21
24	NFT	0.32	0.15	0.41	0.49	1.00	0.26	0.33	0.22	0.26	0.35	0.28	0.27	0.16	0.20	0.21	0.16	0.20	0.22	0.19
25	NFI	0.24	0.12	0.37	0.31	0.26	1.00	0.34	0.26	0.34	0.38	0.18	0.41	0.42	0.19	0.30	0.19	0.18	0.34	0.25
26	NSU	0.15	0.13	0.38	0.25	0.33	0.34	1.00	0.35	0.35	0.45	0.28	0.40	0.34	0.18	0.24	0.22	0.21	0.35	0.17
27	NSC	0.25	0.21	0.43	0.15	0.22	0.26	0.35	1.00	0.39	0.41	0.39	0.44	0.19	0.17	0.11	0.14	0.12	0.22	0.10
28	NSR	0.29	0.22	0.23	0.20	0.26	0.34	0.35	0.39	1.00	0.42	0.36	0.36	0.25	0.07	0.10	0.09	0.14	0.23	0.12
29	NSS	0.20	0.16	0.26	0.25	0.35	0.38	0.45	0.41	0.42	1.00	0.38	0.44	0.24	0.18	[illegible]	[illegible]	0.08	0.23	0.11
30	NST	0.25	0.14	0.24	0.18	0.28	0.18	0.28	0.39	0.36	0.38	1.00	0.23	0.16	0.11	0.08	0.03	0.08	0.12	0.07
31	NSI	0.16	0.15	0.37	0.17	0.27	0.41	0.40	0.44	0.36	0.44	0.23	1.00	0.28	0.14	0.21	0.11	0.08	0.23	0.07
32	NMU(I)	0.21	0.08	0.33	0.15	0.16	0.42	0.34	0.19	0.25	0.24	0.16	0.28	1.00	0.46	0.68	0.45	0.46	0.59	0.58
33	NMC	0.13	0.04	0.27	0.17	0.20	0.19	0.18	0.17	0.07	0.18	0.11	0.14	0.46	1.00	0.60	0.63	0.48	0.54	0.63
34	NMR	0.09	-.04	0.27	0.17	0.21	0.30	0.24	0.11	0.10	0.17	0.08	0.21	0.68	0.60	1.00	0.75	0.61	0.61	0.77
35	NMS	0.13	-.03	0.16	0.22	0.16	0.19	0.14	0.09	0.07	0.09	0.11	0.54	0.54	0.63	0.75	1.00	0.69	0.59	0.80
36	NMT	0.18	-.07	0.16	0.15	0.20	0.18	0.21	0.12	0.14	0.08	0.08	0.08	0.46	0.48	0.61	0.69	1.00	0.47	0.67
37	NMI	0.16	0.14	0.33	0.20	0.22	0.34	0.35	0.22	0.23	0.23	0.12	0.23	0.59	0.54	0.61	0.59	0.47	1.00	0.57
38	NMU(II)	0.18	-.03	0.09	0.21	0.19	0.25	0.17	0.10	0.12	0.11	0.07	0.07	0.58	0.63	0.77	0.80	0.67	0.57	1.00

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TABLE : XVI - h

CORRELATIONAL STUDY : CA - 8 : CORRELATION MATRIX - EVALUATION

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	EFU	-.11	0.18	0.20	0.15	0.14	0.20	0.20	0.11	0.11	0.15	0.12	0.20	0.05	0.25	0.26	0.30	0.26	0.25	0.29
21	EFC	-.22	0.24	0.23	0.21	0.27	0.18	0.23	0.26	0.19	0.25	0.08	0.28	0.21	0.18	0.20	0.24	0.28	0.23	0.27
22	EFR	0.03	0.21	0.10	0.13	0.12	0.12	0.08	0.19	0.14	0.17	0.05	0.09	0.09	0.05	0.11	0.13	0.18	0.15	0.14
23	EFS	-.14	0.20	0.29	0.22	0.18	0.30	0.26	0.28	0.27	0.24	0.18	0.29	0.22	0.18	0.21	0.24	0.24	0.24	0.24
24	EFT	-.08	0.13	0.26	0.17	0.12	0.22	0.20	0.23	0.19	0.14	0.14	0.16	0.10	0.20	0.15	0.23	0.24	0.21	0.22
25	EFI	-.06	0.22	0.19	0.26	0.22	0.28	0.22	0.18	0.20	0.17	0.28	0.25	0.20	0.06	0.16	0.19	0.16	0.15	0.17
26	ESU	-.10	0.32	0.32	0.31	0.31	0.22	0.19	0.16	0.26	0.23	0.10	0.28	0.30	0.28	0.27	0.27	0.29	0.27	0.30
27	ESC	-.25	0.32	0.38	0.35	0.44	0.31	0.21	0.30	0.36	0.25	0.19	0.23	0.29	0.39	0.43	0.41	0.50	0.46	0.48
28	ESR	-.26	0.28	0.28	0.33	0.35	0.22	0.19	0.18	0.17	0.18	0.13	0.25	0.24	0.23	0.28	0.24	0.33	0.24	0.30
29	ESS	-.23	0.35	0.27	0.31	0.40	0.20	0.14	0.16	0.12	0.22	0.04	0.30	0.24	0.27	0.26	0.24	0.30	0.26	0.31
30	EST	-.10	0.21	0.19	0.28	0.20	0.27	0.17	0.23	0.19	0.17	0.08	0.17	0.20	0.28	0.26	0.22	0.26	0.24	0.28
31	ESI	-.10	0.05	0.18	0.11	0.12	0.16	0.04	0.04	0.07	0.08	0.09	0.04	0.01	0.07	0.06	0.03	0.09	0.03	0.07
32	EMU	-.15	0.03	0.24	0.21	0.12	0.18	0.21	0.11	0.18	0.08	0.04	0.24	0.18	0.20	0.22	0.26	0.26	0.24	0.26
33	EMC	-.18	0.02	0.18	0.04	0.11	0.14	0.23	0.10	0.15	0.02	0.16	0.27	0.20	0.31	0.33	0.33	0.30	0.30	0.34
34	EMR	-.41	0.24	0.40	0.26	0.42	0.33	0.32	0.31	0.32	0.26	0.25	0.48	0.36	0.30	0.43	0.43	0.46	0.41	0.45
35	EMS	-.12	0.25	0.20	0.20	0.24	0.28	0.31	0.30	0.22	0.24	0.20	0.41	0.40	0.40	0.44	0.41	0.36	0.35	0.42
36	EMT	0.09	0.10	0.17	0.14	0.19	0.17	0.05	0.14	0.12	0.20	0.06	0.10	0.12	0.07	0.10	0.08	0.09	0.09	0.11
37	EMI	-.25	0.05	0.28	0.25	0.21	0.13	0.31	0.22	0.25	0.15	0.06	0.29	0.24	0.31	0.34	0.37	0.37	0.36	0.39

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CORRELATIONAL STUDY : CA - B : CORRELATION MATRIX - EVALUATION(CONTD)

		20 EFU	21 EFC	22 EFR	23 EFS	24 EFT	25 EFI	26 ESU	27 ESC	28 ESR	29 ESS	30 EST	31 ESI	32 EMU	33 EMC	34 EMR	35 EMS	36 EMT	37 EMI
1	AGE	-.11	-.22	0.07	-.14	-.08	-.06	-.10	-.25	-.25	-.23	-.10	-.10	-.15	-.18	-.41	-.12	0.09	0.25
2	SE1	0.18	0.24	0.21	0.20	0.13	0.22	0.32	0.32	0.28	0.35	0.21	0.05	0.03	0.02	0.24	0.25	0.10	0.05
3	PS1	0.20	0.23	0.10	0.29	0.26	0.19	0.32	0.38	0.28	0.27	0.19	0.18	0.24	0.18	0.40	0.20	0.17	0.28
4	FS2	0.15	0.21	0.13	0.22	0.17	0.26	0.31	0.35	0.33	0.31	0.28	0.11	0.21	0.04	0.26	0.20	0.14	0.25
5	SE2	0.14	0.27	0.12	0.18	0.12	0.22	0.31	0.44	0.35	0.40	0.20	0.12	0.12	0.11	0.42	0.24	0.19	0.21
6	SPM	0.20	0.18	0.12	0.30	0.22	0.28	0.22	0.31	0.22	0.20	0.24	0.16	0.18	0.14	0.33	0.28	0.17	0.13
7	RSP	0.20	0.23	0.08	0.26	0.20	0.22	0.19	0.21	0.19	0.14	0.17	0.04	0.21	0.23	0.32	0.31	0.05	0.31
8	SCO	0.11	0.26	0.19	0.28	0.23	0.18	0.16	0.30	0.18	0.16	0.23	0.04	0.11	0.10	0.31	0.30	0.14	0.22
9	WAR	0.11	0.19	0.14	0.27	0.19	0.20	0.26	0.36	0.17	0.12	0.19	0.07	0.18	0.15	0.32	0.22	0.12	0.25
10	LFE	0.15	0.25	0.17	0.24	0.14	0.17	0.23	0.25	0.18	0.22	0.17	0.08	0.08	0.02	0.26	0.24	0.20	0.15
11	JUD	0.12	0.08	0.05	0.18	0.14	0.28	0.10	0.19	0.13	0.04	0.08	0.09	0.04	0.16	0.25	0.20	0.06	0.06
12	ANA	0.20	0.28	0.09	0.29	0.16	0.25	0.28	0.23	0.25	0.30	0.17	0.04	0.24	0.27	0.48	0.41	0.10	0.29
13	VOC	0.05	0.21	0.09	0.22	0.10	0.20	0.30	0.29	0.24	0.24	0.20	0.01	0.18	0.20	0.36	0.40	0.12	0.24
14	MAR	0.25	0.18	0.05	0.18	0.20	0.06	0.28	0.39	0.23	0.27	0.28	0.07	0.20	0.31	0.30	0.40	0.07	0.31
15	OLA	0.26	0.20	0.11	0.21	0.15	0.16	0.27	0.43	0.28	0.26	0.26	0.06	0.22	0.33	0.43	0.44	0.10	0.34
16	SST	0.30	0.24	0.13	0.24	0.23	0.19	0.27	0.41	0.24	0.24	0.22	0.03	0.26	0.33	0.43	0.41	0.08	0.37
17	MAT	0.26	0.28	0.18	0.24	0.24	0.16	0.29	0.50	0.33	0.30	0.26	0.09	0.26	0.30	0.46	0.36	0.09	0.37
18	SCI	0.25	0.23	0.15	0.24	0.21	0.15	0.27	0.46	0.24	0.26	0.24	0.03	0.24	0.30	0.41	0.35	0.09	0.36
19	GTP	0.29	0.27	0.14	0.24	0.22	0.17	0.30	0.48	0.30	0.31	0.28	0.07	0.26	0.34	0.45	0.42	0.11	0.39
20	EFU	1.00	0.41	0.29	0.38	0.39	0.27	0.16	0.08	0.11	0.19	0.14	0.17	0.13	0.03	0.25	0.13	0.14	0.14
21	EFC	0.41	1.00	0.26	0.43	0.31	0.36	0.14	0.28	0.26	0.29	0.18	0.16	0.17	0.07	0.32	0.29	0.03	0.27
22	EFR	0.29	0.26	1.00	0.39	0.28	0.29	0.19	0.17	0.12	0.01	0.10	0.13	0.04	0.01	0.14	0.09	0.10	0.06
23	EFS	0.38	0.43	0.39	1.00	0.37	0.44	0.25	0.27	0.22	0.17	0.25	0.27	0.17	0.09	0.29	0.21	0.10	0.14
24	EFT	0.39	0.31	0.28	0.37	1.00	0.13	0.17	0.21	0.13	0.06	0.04	0.11	0.19	-.02	0.27	0.23	0.09	0.24
25	EFI	0.27	0.36	0.29	0.44	0.13	1.00	0.18	0.18	0.31	0.15	0.16	0.18	0.07	0.08	0.28	0.22	0.04	0.13
26	ESU	0.16	0.14	0.19	0.25	0.17	0.18	1.00	0.27	0.19	0.31	0.22	0.12	0.23	0.18	0.20	0.29	0.07	0.19
27	ESC	0.08	0.28	0.17	0.27	0.21	0.18	0.27	1.00	0.33	0.32	0.25	0.14	0.24	0.15	0.36	0.16	0.14	0.14
28	ESR	0.11	0.26	0.12	0.22	0.13	0.31	0.19	0.33	1.00	0.36	0.20	0.10	0.23	0.12	0.25	0.23	-.15	0.27
29	ESS	0.19	0.29	0.01	0.17	0.06	0.15	0.31	0.32	0.36	1.00	0.34	0.16	0.19	0.08	0.19	0.29	0.00	0.10
30	EST	0.14	0.18	0.10	0.25	0.04	0.16	0.22	0.25	0.20	0.34	1.00	0.23	0.14	-.02	0.13	0.33	0.19	0.10
31	ESI	0.17	0.16	0.13	0.27	0.11	0.18	0.12	0.14	0.10	0.16	0.23	1.00	0.04	0.05	0.08	0.05	0.09	0.00
32	EMU	0.13	0.17	0.04	0.17	0.19	0.07	0.23	0.24	0.23	0.19	0.14	0.04	1.00	0.10	0.19	0.13	0.13	0.28
33	EMC	0.03	0.07	0.01	0.09	-.02	0.08	0.18	0.15	0.12	0.08	-.02	0.05	0.10	1.00	0.24	0.13	0.12	0.19
34	EMR	0.25	0.32	0.14	0.29	0.27	0.28	0.30	0.35	0.25	0.19	0.13	0.08	0.19	0.24	1.00	0.37	0.07	0.27
35	EMS	0.13	0.29	0.09	0.21	0.23	0.22	0.29	0.16	0.23	0.29	0.33	0.05	0.13	0.13	0.37	1.00	0.01	0.28
36	EMT	0.14	0.03	0.10	0.10	0.09	0.04	0.07	0.14	-.15	0.00	0.19	0.09	0.13	0.12	0.07	0.01	1.00	0.07
37	EMI	0.14	0.27	0.06	0.14	0.24	0.13	0.19	0.14	0.27	0.10	0.10	-.01	0.28	0.19	0.27	0.28	0.07	0.00

TABLE : XVI - i

CORRELATIONAL STUDY : CA [illegible] : CORRELATION MATRIX - UNIT

		1 AGE	2 SE1	3 FS1	4 FS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 DLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	FS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	FS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	DLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CFU	-.22	0.02	0.05	0.10	0.14	0.13	0.10	0.09	0.20	0.23	0.03	0.06	0.10	0.21	0.19	0.15	0.19	0.21	0.22
21	MFU	0.03	0.17	0.01	0.00	0.08	0.09	0.05	0.01	0.03	-.04	-.03	0.06	-.02	-.02	0.01	0.01	-.03	-.04	0.02
22	DFU	-.20	0.04	0.02	0.05	0.10	0.14	0.05	0.15	0.12	0.09	0.05	0.13	0.10	0.08	0.17	0.11	0.14	0.07	0.15
23	NFU	-.12	0.17	0.18	0.12	0.23	0.08	0.16	0.17	0.13	0.17	-.08	0.15	0.07	0.16	0.18	0.20	0.21	0.16	0.21
24	EFU	-.11	0.18	0.20	0.15	0.14	0.20	0.20	0.11	0.11	0.15	0.12	0.20	0.05	0.25	0.26	0.30	0.26	0.25	0.29
25	CSU	-.18	0.14	0.09	0.14	0.21	0.13	0.25	0.18	0.18	0.08	0.15	0.34	0.24	0.13	0.20	0.18	0.10	0.13	0.16
26	MSU	-.24	0.22	0.17	0.23	0.29	0.18	0.18	0.25	0.12	0.25	0.06	0.30	0.23	0.22	0.24	0.27	0.20	0.21	0.27
27	DSU	-.05	0.18	0.01	0.12	0.09	-.05	0.06	0.27	0.12	0.18	-.12	0.11	0.13	0.08	0.04	0.04	0.01	0.04	0.04
28	NSU	-.22	0.24	0.24	0.27	0.39	0.28	0.18	0.23	0.22	0.17	0.04	0.29	0.26	0.36	0.44	0.34	0.49	0.40	0.45
29	ESU	-.10	0.32	0.32	0.31	0.31	0.22	0.19	0.16	0.26	0.23	0.10	0.28	0.30	0.28	0.27	0.27	0.29	0.27	0.30
30	CMU	-.26	0.06	0.30	0.20	0.14	0.15	0.39	0.29	0.26	0.14	0.16	0.40	0.39	0.29	0.39	0.36	0.34	0.31	0.36
31	MMU	-.36	0.07	0.30	0.27	0.19	0.23	0.37	0.30	0.34	0.26	0.21	0.33	0.33	0.36	0.40	0.36	0.29	0.33	0.39
32	DMU	-.14	0.14	0.08	0.06	0.22	0.06	0.16	0.20	0.15	0.12	-.01	0.11	0.09	0.16	0.16	0.16	0.12	0.13	0.15
33	NMU(I)	-.26	0.28	0.43	0.32	0.31	0.26	0.47	0.46	0.35	0.20	0.21	0.46	0.52	0.38	0.46	0.46	0.41	0.36	0.46
34	NMU(II)	-.07	0.16	0.14	0.12	0.21	0.12	0.23	0.24	0.10	0.04	0.00	0.21	0.24	0.12	0.16	0.14	0.11	0.05	0.17
35	EMU	-.15	0.03	0.24	0.21	0.12	0.18	0.21	0.11	0.18	0.08	0.04	0.24	0.18	0.20	0.22	0.26	0.26	0.24	0.26

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CORRELATIONAL STUDY : CA - 9 : CORRELATION MATRIX - UNIT(CONTD)

		20 CFU	21 MFU	22 DFU	23 NFU	24 EFU	25 CSU	26 MSU	27 DSU	28 NSU	29 ESU	30 CMU	31 MMU	32 DMU	33 NMU(I)	34 NMU(II)	35 EMU
1	AGE	-.22	0.03	-.20	-.12	-.11	-.18	-.24	-.05	-.22	-.10	-.26	-.36	-.14	-.26	-.07	-.15
2	SE1	0.02	0.17	0.04	0.17	0.18	0.14	0.22	0.18	0.24	0.32	0.06	0.07	0.14	0.28	0.16	0.03
3	PS1	0.05	0.01	0.02	0.18	0.20	0.09	0.17	0.01	0.24	0.32	0.30	0.30	0.08	0.43	0.14	0.24
4	PS2	0.10	0.00	0.05	0.12	0.15	0.14	0.23	0.12	0.27	0.31	0.20	0.27	0.06	0.32	0.12	0.21
5	SE2	0.14	0.08	0.10	0.23	0.14	0.21	0.29	0.89	0.39	0.31	0.14	0.19	0.22	0.31	0.21	0.12
6	SPM	0.13	0.09	0.14	0.08	0.20	0.13	0.18	-.05	0.28	0.22	0.15	0.23	0.06	0.26	0.16	0.18
7	RSP	0.10	0.05	0.05	0.16	0.20	0.25	0.18	0.06	0.18	0.19	0.39	0.37	0.16	0.47	0.23	0.21
8	SCO	0.09	0.01	0.15	0.17	0.11	0.18	0.25	0.27	0.23	0.16	0.29	0.30	0.20	0.46	0.24	0.11
9	WAR	0.20	0.03	0.12	0.13	0.11	0.18	0.12	0.12	0.22	0.26	0.26	0.34	0.15	0.35	0.10	0.18
10	LPE	0.23	-.04	0.09	0.17	0.15	0.08	0.25	0.18	0.17	0.23	0.14	0.26	0.12	0.20	0.04	0.08
11	JUD	0.03	-.03	0.05	-.08	0.12	0.15	0.06	-.12	0.04	0.10	0.16	0.21	-.01	0.21	0.00	0.04
12	ANA	0.06	0.06	0.13	0.15	0.20	0.34	0.30	0.11	0.29	0.28	0.04	0.33	0.11	0.46	0.21	0.24
13	VOC	0.10	-.02	0.10	0.07	0.05	0.24	0.23	0.13	0.26	0.30	0.39	0.33	0.09	0.52	0.24	0.18
14	MAR	0.21	-.02	0.08	0.16	0.25	0.13	0.22	0.08	0.36	0.28	0.29	0.36	0.16	0.38	0.12	0.20
15	OLA	0.19	0.01	0.17	0.18	0.26	0.20	0.24	0.04	0.44	0.27	0.39	0.40	0.16	0.46	0.16	0.22
16	SST	0.15	0.01	0.11	0.20	0.30	0.18	0.27	0.04	0.34	0.27	0.36	0.36	0.16	0.46	0.14	0.26
17	MAT	0.19	-.03	0.14	0.21	0.26	0.10	0.20	0.01	0.49	0.29	0.34	0.29	0.12	0.41	0.11	0.26
18	SCI	0.21	-.04	0.07	0.16	0.25	0.13	0.21	0.04	0.40	0.27	0.31	0.33	0.13	0.36	0.05	0.24
19	GTP	0.22	0.02	0.15	0.21	0.29	0.16	0.27	0.04	0.45	0.30	0.36	0.39	0.15	0.46	0.17	0.26
20	CFU	1.00	0.06	0.13	0.26	0.14	0.12	0.13	0.11	0.19	0.11	0.04	0.17	0.15	0.03	0.13	0.12
21	MFU	0.06	1.00	0.04	0.14	0.10	0.01	0.01	0.12	0.04	0.11	-.13	-.03	-.02	0.31	0.64	-.05
22	DFU	0.13	0.04	1.00	0.10	0.13	0.08	0.14	0.30	0.18	0.07	0.20	0.19	0.35	0.13	0.05	0.15
23	NFU	0.26	0.14	0.10	1.00	0.19	0.21	0.28	0.17	0.15	0.23	0.10	0.09	0.25	0.21	0.18	0.14
24	EFU	0.14	0.10	0.13	0.19	1.00	0.04	0.17	0.09	0.13	0.16	0.15	0.08	0.12	0.17	0.07	0.13
25	CSU	0.12	0.01	0.08	0.21	0.04	1.00	0.23	0.02	0.14	0.03	0.17	0.13	0.34	0.22	0.07	0.06
26	MSU	0.13	-.01	0.14	0.28	0.17	0.23	1.00	0.01	0.12	0.11	0.14	0.17	0.18	0.14	0.07	0.08
27	DSU	0.11	0.12	0.30	0.17	0.09	0.02	0.01	1.00	0.12	0.16	0.07	0.18	0.26	0.14	0.14	-.06
28	NSU	0.19	0.04	0.18	0.15	0.13	0.14	0.12	0.12	1.00	0.29	0.24	0.31	0.18	0.34	0.17	0.21
29	ESU	0.11	0.11	0.07	0.23	0.16	0.03	0.11	0.16	0.29	1.00	0.16	0.22	0.18	0.27	0.13	0.23
30	CMU	0.04	-.13	0.20	0.10	0.15	0.17	0.14	0.07	0.24	0.16	1.00	0.41	0.12	0.50	0.14	0.29
31	MMU	0.17	-.03	0.19	0.09	0.08	0.13	0.17	0.18	0.31	0.22	0.41	1.00	0.14	0.35	0.14	0.24
32	DMU	0.15	-.02	0.35	0.25	0.12	0.34	0.18	0.26	0.18	0.18	0.12	0.14	1.00	0.18	0.04	0.16
33	NMU(I)	0.03	0.31	0.13	0.21	0.17	0.22	0.14	0.14	0.34	0.27	0.50	0.35	0.18	1.00	0.58	0.23
34	NMU(II)	0.13	0.64	0.05	0.18	0.07	0.07	0.07	0.14	0.17	0.13	0.14	0.14	0.04	0.58	1.00	0.11
35	EMU	0.12	-.05	0.15	0.14	0.13	0.06	0.08	-.06	0.21	0.23	0.29	0.24	0.16	0.23	0.11	1.00

TABLE : XVI - j

CORRELATIONAL STUDY : CA - 10 : CORRELATION MATRIX - CLASS

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CFC	-.18	0.08	0.24	0.24	0.20	0.20	0.07	0.02	0.22	0.13	0.07	0.10	0.05	0.29	0.27	0.29	0.32	0.29	0.33
21	MFC	-.02	0.15	0.08	0.05	0.14	0.15	0.14	0.04	0.13	0.05	0.02	0.11	0.02	0.06	0.13	0.13	0.09	0.08	0.15
22	DFC	0.06	0.15	0.12	0.10	0.17	0.13	0.19	0.19	0.18	0.10	0.08	0.16	0.21	0.19	0.20	0.21	0.21	0.19	0.21
23	NFC	-.10	0.22	0.10	0.08	0.19	0.12	0.17	0.12	0.14	0.19	0.12	0.17	0.11	0.07	0.13	0.06	0.13	0.09	0.09
24	EFC	-.22	0.24	0.23	0.21	0.27	0.18	0.23	0.26	0.19	0.25	0.08	0.28	0.21	0.18	0.20	0.24	0.28	0.23	0.27
25	CSC	-.29	0.24	0.31	0.22	0.34	0.18	0.21	0.21	0.18	0.18	0.03	0.30	0.19	0.17	0.26	0.22	0.31	0.23	0.27
26	MSC	-.11	0.15	0.18	0.22	0.18	0.11	0.20	0.19	0.10	0.26	0.10	0.24	0.19	0.18	0.27	0.20	0.18	0.15	0.22
27	DSC	-.14	0.38	0.41	0.35	0.46	0.33	0.33	0.26	0.38	0.27	0.18	0.40	0.34	0.36	0.42	0.45	0.56	0.48	0.49
28	NSC	-.15	0.25	0.27	0.24	0.31	0.18	0.12	0.17	0.22	0.19	0.08	0.19	0.21	0.33	0.35	0.34	0.45	0.37	0.42
29	ESC	-.25	0.32	0.38	0.35	0.44	0.31	0.21	0.30	0.36	0.25	0.19	0.23	0.29	0.39	0.43	0.41	0.50	0.46	0.48
30	CMC	-.14	0.11	0.24	0.15	0.10	0.11	0.21	0.22	0.17	0.14	0.15	0.33	0.28	0.22	0.33	0.27	0.32	0.23	0.31
31	MMC	-.22	0.07	0.24	0.27	0.21	0.20	0.22	0.21	0.25	0.15	0.18	0.29	0.26	0.29	0.33	0.34	0.26	0.25	0.34
32	DMC	-.22	0.17	0.14	0.18	0.23	0.15	0.25	0.20	0.19	0.14	0.08	0.24	0.22	0.34	0.36	0.36	0.28	0.31	0.37
33	NMC	-.08	0.16	0.12	0.12	0.19	0.27	0.17	0.17	0.16	0.07	0.13	0.24	0.25	0.19	0.20	0.20	0.14	0.11	0.21
34	EMC	-.18	0.02	0.18	0.04	0.11	0.14	0.23	0.10	0.15	0.02	0.16	0.27	0.20	0.31	0.33	0.33	0.30	0.30	0.34

....CONTD

CORRELATIONAL STUDY : CA - 10 : CORRELATION MATRIX - CLASS

	20 CFC	21 MFC	22 DFC	23 NFC	24 EFC	25 CSC	26 MSC	27 DSC	28 NSC	29 ESC	30 CMC	31 MMC	32 DMC	33 NMC	34 EMC
1 AGE	.18	.10	.11	.25	.22	.02	.22	.14	.14	.08	.06	.29	.15	.22	.18
2 SE1	.82	.10	.15	.32	.17	.15	.24	.38	.11	.16	.15	.24	.25	.07	.02
3 PS1	.24	.01	.18	.38	.14	.07	.23	.41	.24	.12	.12	.31	.27	.24	.18
4 PS2	.24	.08	.22	.35	.18	.05	.21	.35	.15	.12	.10	.22	.24	.27	.04
5 SE2	.20	.19	.18	.44	.23	.14	.27	.46	.10	.20	.17	.34	.31	.21	.11
6 SPM	.20	.12	.11	.31	.15	.15	.18	.33	.12	.27	.13	.18	.18	.20	.14
7 RSP	.06	.17	.20	.21	.25	.14	.23	.33	.21	.17	.19	.21	.12	.22	.23
8 SCO	.18	.12	.19	.30	.20	.04	.26	.26	.22	.17	.19	.21	.17	.21	.10
9 WAR	.22	.14	.01	.36	.19	.13	.20	.38	.17	.16	.18	.18	.22	.25	.15
10 LPE	.13	.19	.26	.25	.14	.05	.25	.27	.14	.07	.01	.18	.19	.15	.02
11 JUD	.07	.12	.01	.19	.08	.02	.08	.18	.15	.13	.08	.03	.08	.18	.16
12 ANA	.10	.17	.24	.23	.24	.11	.28	.40	.33	.24	.16	.30	.19	.29	.27
13 VOC	.04	.11	.19	.29	.22	.02	.21	.34	.28	.25	.20	.19	.21	.26	.20
14 MAR	.29	.07	.18	.39	.34	.06	.18	.36	.22	.19	.19	.17	.33	.29	.31
15 OLA	.27	.13	.27	.43	.36	.13	.20	.42	.33	.20	.20	.26	.36	.33	.33
16 SST	.29	.06	.20	.40	.36	.13	.24	.45	.27	.20	.21	.22	.34	.26	.33
17 MAT	.32	.13	.18	.50	.28	.09	.28	.56	.32	.14	.21	.31	.45	.26	.30
18 SCI	.29	.09	.15	.46	.31	.08	.23	.48	.23	.11	.19	.23	.37	.25	.30
19 GTP	.33	.09	.22	.48	.37	.15	.27	.49	.31	.21	.21	.27	.42	.34	.34
20 CFC	.10	.11	.16	.27	.13	.13	.13	.22	.06	.00	.07	.18	.19	.17	.12
21 MFC	.13	.01	.09	.03	.03	.10	.09	.07	.00	.42	.06	.04	.08	.11	.01
22 DFC	.07	.01	.06	.16	.23	.06	.09	.16	.37	.10	.10	.08	.13	.19	.17
23 NFC	.11	.10	.20	.12	.16	.01	.27	.32	.08	.04	.07	.19	.21	.05	.02
24 EFC	.13	.27	.11	.28	.19	.09	.10	.41	.13	.20	.09	.30	.34	.20	.07
25 CSC	.18	.19	.11	.40	.30	.04	.30	.41	.22	.07	.08	.10	.20	.20	.07
26 MSC	.16	.20	.10	.19	.07	.09	.11	.23	.12	.01	.06	.11	.20	.30	.06
27 DSC	.22	.31	.23	.54	.26	.07	.41	.10	.19	.18	.16	.42	.45	.28	.18
28 NSC	.19	.21	.20	.45	.22	.08	.34	.45	.20	.17	.13	.20	.10	.14	.17
29 ESC	.27	.12	.19	.10	.31	.03	.28	.54	.11	.01	.16	.40	.45	.20	.15
30 CMC	.05	.08	.12	.11	.21	.00	.13	.19	.10	.00	.37	.22	.20	.18	.26
31 MMC	.17	.05	.30	.20	.06	.11	.20	.28	.18	.08	.18	.20	.16	.10	.13
32 DMC	.13	.16	.07	.31	.10	.03	.19	.26	.21	.13	.23	.30	.22	.06	.16
33 NMC	.00	.04	.01	.01	.13	.42	.20	.18	.00	.10	.10	.07	.17	.08	.02
34 EMC	.12	.02	.06	.15	.16	.01	.07	.18	.26	.02	.17	.06	.17	.13	.10

TABLE : XVI - k

CORRELATIONAL STUDY : CA - 11 : CORRELATION MATRIX - RELATION

		1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 bTP
1	AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2	SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3	PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4	PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5	SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6	SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7	RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8	SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9	WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10	LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11	JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12	ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13	VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	-0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14	MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15	OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16	SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17	MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18	SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19	GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20	CFR	-.27	0.27	0.37	0.33	0.35	0.40	0.28	0.18	0.29	0.18	0.20	0.30	0.27	0.38	0.41	0.41	0.43	0.41	0.46
21	MFR	-.09	0.02	0.03	0.02	0.11	0.12	0.05	0.00	0.16	0.03	0.06	0.04	-0.08	0.01	0.05	0.02	0.05	0.05	0.06
22	DFR	-.14	0.18	0.25	0.11	0.16	0.05	0.10	0.28	0.17	0.18	0.04	0.26	0.26	0.13	0.19	0.20	0.27	0.15	0.20
23	NFR	-.26	0.16	0.40	0.29	0.33	0.35	0.24	0.26	0.37	0.24	0.24	0.36	0.31	0.29	0.42	0.38	0.44	0.39	0.45
24	EFR	0.03	0.21	0.10	0.13	0.12	0.12	0.08	0.19	0.14	0.17	0.05	0.09	0.09	0.05	0.11	0.13	0.18	0.15	0.14
25	CSR	-.17	0.20	0.15	0.07	0.30	0.17	0.17	0.16	0.14	0.07	0.00	0.25	0.21	0.12	0.21	0.13	0.12	0.12	0.16
26	MSR	-.08	0.06	0.20	-.02	0.19	0.03	0.10	0.13	0.11	0.16	0.07	0.23	0.12	0.09	0.09	0.10	0.13	0.11	0.12
27	DSR	-.21	0.37	0.33	0.26	0.35	0.29	0.32	0.21	0.25	0.21	0.08	0.31	0.19	0.34	0.40	0.42	0.46	0.39	0.46
28	NSR	-.09	0.35	0.34	0.20	0.26	0.15	0.16	0.18	0.17	0.26	0.00	0.24	0.22	0.30	0.31	0.28	0.38	0.32	0.35
29	ESR	-.26	0.28	0.28	0.33	0.35	0.22	0.19	0.18	0.17	0.18	0.13	0.25	0.24	0.23	0.28	0.24	0.33	0.24	0.30
30	CMR	-.32	0.20	0.35	0.28	0.26	0.28	0.32	0.27	0.32	0.20	0.22	0.45	0.37	0.29	0.41	0.36	0.38	0.35	0.41
31	MMR	-.25	0.25	0.39	0.28	0.37	0.27	0.29	0.35	0.37	0.16	0.27	0.37	0.34	0.33	0.40	0.39	0.43	0.37	0.44
32	DMR	-.11	0.21	0.28	0.19	0.31	0.25	0.26	0.23	0.23	0.16	0.19	0.24	0.27	0.31	0.35	0.37	0.36	0.29	0.37
33	NMR	-.21	0.22	0.24	0.23	0.25	0.29	0.24	0.25	0.19	0.03	0.14	0.37	0.35	0.27	0.32	0.33	0.24	0.20	0.33
34	EMR	-.41	0.24	0.40	0.26	0.42	0.33	0.32	0.31	0.32	0.26	0.25	0.48	0.36	0.30	0.43	0.43	0.46	0.41	0.45

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CORRELATIONAL STUDY : CA – 11 : CORRELATION MATRIX – RELATION(CONTD).

		20 CFR	21 MFR	22 DFR	23 NFR	24 EFR	25 CSR	26 MSR	27 DSR	28 NSR	29 ESR	30 CMR	31 MMR	32 DMR	33 NMR	34 EMR
1	AGE	-.27	-.09	-.14	-.26	0.03	-.17	-.08	-.21	-.09	-.25	-.32	-.25	-.11	-.21	-.41
2	SE1	0.27	0.02	0.18	0.16	0.21	0.20	0.06	0.37	0.35	0.28	0.20	0.25	0.21	0.22	0.24
3	PS1	0.37	0.03	0.25	0.40	0.10	0.15	0.20	0.33	0.34	0.28	0.35	0.39	0.28	0.24	0.40
4	PS2	0.33	0.02	0.11	0.29	0.13	0.07	-.02	0.26	0.20	0.33	0.28	0.28	0.19	0.03	0.26
5	SE2	0.35	0.11	0.16	0.33	0.12	0.30	0.19	0.35	0.26	0.35	0.26	0.37	0.31	0.25	0.42
6	SPM	0.40	0.12	0.05	0.35	0.12	0.17	0.03	0.29	0.15	0.22	0.28	0.27	0.25	0.29	0.33
7	RSP	0.28	0.05	0.10	0.24	0.08	0.17	0.10	0.32	0.16	0.19	0.32	0.29	0.26	0.24	0.32
8	SCO	0.18	0.00	0.28	0.26	0.19	0.16	0.13	0.21	0.18	0.18	0.27	0.35	0.23	0.25	0.31
9	WAR	0.29	0.16	0.17	0.37	0.14	0.15	0.11	0.25	0.17	0.17	0.32	0.37	0.23	0.19	0.32
10	LPE	0.18	0.03	0.18	0.24	0.17	0.07	0.16	0.21	0.26	0.18	0.20	0.16	0.16	0.03	0.26
11	JUD	0.20	0.06	0.04	0.24	0.05	0.06	0.07	0.08	0.00	0.13	0.22	0.27	0.19	0.14	0.25
12	ANA	0.30	0.04	0.26	0.36	0.09	0.25	0.23	0.31	0.24	0.25	0.45	0.37	0.24	0.37	0.48
13	VOC	0.27	0.08	0.26	0.31	0.09	0.21	0.12	0.19	0.22	0.24	0.37	0.34	0.27	0.35	0.36
14	MAR	0.38	0.01	0.13	0.29	0.05	0.12	0.09	0.34	0.30	0.23	0.29	0.33	0.31	0.27	0.30
15	DLA	0.41	0.05	0.19	0.42	0.11	0.21	0.09	0.40	0.31	0.28	0.41	0.40	0.35	0.32	0.43
16	SST	0.41	0.02	0.20	0.38	0.13	0.13	0.10	0.42	0.28	0.24	0.36	0.39	0.37	0.33	0.43
17	MAT	0.43	0.05	0.27	0.44	0.18	0.12	0.13	0.46	0.38	0.33	0.38	0.43	0.36	0.24	0.46
18	SCI	0.41	0.05	0.15	0.39	0.15	0.12	0.11	0.39	0.32	0.24	0.35	0.37	0.29	0.20	0.41
19	GTP	0.46	0.06	0.20	0.45	0.14	0.16	0.12	0.46	0.35	0.30	0.41	0.44	0.37	0.33	0.45
20	CFR	1.00	0.08	0.04	0.40	0.19	0.19	0.12	0.40	0.27	0.15	0.38	0.38	0.21	0.21	0.37
21	MFR	0.08	1.00	0.06	0.13	-.04	0.04	0.10	0.16	0.11	0.08	0.07	0.13	0.15	0.38	0.11
22	DFR	0.04	0.06	1.00	0.16	0.12	0.14	0.11	0.13	0.12	0.21	0.32	0.11	0.35	0.22	0.20
23	NFR	0.40	0.13	0.16	1.00	0.19	0.21	0.15	0.36	0.23	0.13	0.40	0.37	0.24	0.27	0.43
24	EFR	0.19	-.04	0.10	0.19	1.00	0.07	0.02	0.26	0.15	0.12	0.12	0.14	0.17	0.03	0.14
25	CSR	0.19	0.04	0.14	0.21	0.07	1.00	0.14	0.18	0.19	0.06	0.24	0.18	0.21	0.14	0.18
26	MSR	0.12	0.10	0.11	0.15	-0.02	0.14	1.00	0.17	0.09	0.11	0.09	0.16	0.09	0.09	0.20
27	DSR	0.40	0.16	0.13	0.36	0.26	0.18	0.17	1.00	0.33	0.37	0.26	0.35	0.34	0.26	0.43
28	NSR	0.27	0.11	0.12	0.23	0.15	0.19	0.09	0.33	1.00	0.24	0.32	0.24	0.26	0.10	0.28
29	ESR	0.15	0.08	0.21	0.13	0.12	0.06	0.11	0.37	0.24	1.00	0.16	0.28	0.16	0.18	0.25
30	CMR	0.38	0.07	0.32	0.40	0.12	0.24	0.09	0.26	0.32	0.16	1.00	0.29	0.19	0.27	0.46
31	MMR	0.38	0.13	0.11	0.37	0.14	0.18	0.16	0.35	0.24	0.28	0.29	1.00	0.21	0.25	0.42
32	DMR	0.21	0.15	0.35	0.24	0.17	0.21	0.09	0.34	0.26	0.16	0.19	0.21	1.00	0.21	0.30
33	NMR	0.21	0.38	0.22	0.27	0.03	0.14	0.09	0.26	0.10	0.18	0.27	0.25	0.21	1.00	0.21
34	EMR	0.37	0.11	0.20	0.43	0.14	0.18	0.20	0.44	0.28	0.25	0.46	0.42	0.30	0.21	1.00

TABLE : XVI - 1

CORRELATIONAL STUDY : CA - 12 : CORRELATION MATRIX - SYSTEM

	1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCO	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1 AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2 SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3 PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4 PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5 SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6 SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7 RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8 SCO	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9 WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10 LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11 JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12 ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13 VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14 MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15 OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16 SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17 MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18 SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19 GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20 CFS	-.13	-.04	0.07	0.13	0.15	0.20	0.14	0.00	0.12	0.07	0.03	0.15	0.03	0.22	0.24	0.21	0.29	0.23	0.26
21 MFS	-.06	-.04	0.04	0.04	0.07	0.15	0.10	-.02	0.05	-.06	0.02	0.07	0.06	-.02	0.03	0.04	-.01	-.04	0.04
22 DFS	-.18	0.05	0.13	0.12	0.14	0.14	0.15	0.14	0.22	0.15	0.11	0.15	0.11	0.15	0.22	0.22	0.22	0.18	0.23
23 NFS	-.03	0.15	0.14	0.14	0.17	0.21	0.10	0.18	0.25	0.21	0.09	0.17	0.11	0.07	0.17	0.09	0.17	0.13	0.16
24 EFS	-.14	0.20	0.29	0.22	0.18	0.30	0.26	0.28	0.27	0.24	0.18	0.29	0.22	0.18	0.21	0.24	0.24	0.24	0.24
25 CSS	-.33	0.39	0.37	0.37	0.61	0.34	0.24	0.25	0.42	0.23	0.13	0.41	0.38	0.33	0.40	0.33	0.50	0.38	0.44
26 MSS	0.00	0.22	0.18	0.23	0.23	0.18	0.03	0.26	0.07	0.26	0.04	0.13	0.16	0.13	0.12	0.14	0.18	0.14	0.17
27 DSS	-.04	0.34	0.31	0.29	0.36	0.22	0.22	0.27	0.22	0.23	0.10	0.32	0.29	0.38	0.42	0.42	0.47	0.43	0.46
28 NSS	-.22	0.34	0.29	0.27	0.34	0.23	0.12	0.22	0.24	0.21	0.04	0.25	0.18	0.34	0.38	0.35	0.42	0.37	0.41
29 ESS	-.23	0.35	0.27	0.31	0.40	0.20	0.14	0.16	0.12	0.22	0.04	0.30	0.24	0.27	0.26	0.24	0.30	0.26	0.31
30 CMS	-.30	0.16	0.18	0.23	0.26	0.15	0.28	0.20	0.21	0.20	0.03	0.32	0.26	0.26	0.33	0.32	0.33	0.30	0.34
31 MMS	-.05	0.12	0.12	0.07	0.10	0.12	0.08	0.11	0.11	0.05	0.07	0.14	0.12	0.18	0.16	0.15	0.09	0.11	0.14
32 DMS	-.13	0.21	0.23	0.20	0.29	0.21	0.24	0.18	0.19	0.19	0.05	0.21	0.28	0.34	0.40	0.33	0.36	0.37	0.39
33 NMS	-.05	0.16	0.14	0.16	0.20	0.22	0.19	0.18	0.15	0.15	0.04	0.21	0.24	0.19	0.24	0.24	0.14	0.09	0.23
34 EMS	-.12	0.25	0.20	0.20	0.24	0.28	0.31	0.30	0.22	0.24	0.20	0.41	0.40	0.40	0.44	0.41	0.36	0.35	0.42

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CORRELATIONAL STUDY : CA – 12 : CORRELATION MATRIX – SYSTEM(CONTD)

		20 CFS	21 MFS	22 DFS	23 NFS	24 EFS	25 CSS	26 MSS	27 DSS	28 NSS	29 ESS	30 CMS	31 MMS	32 DMS	33 NMS	34 EMS
1	AGE	-.13	-.06	-.18	-.03	-.14	-.33	0.00	-.04	-.22	-.23	-.30	-.05	-.13	-.05	-.12
2	SE1	-.04	-.04	0.05	0.15	0.20	0.39	0.22	0.34	0.34	0.35	0.16	0.12	0.21	0.16	0.25
3	PS1	0.07	0.04	0.13	0.14	0.29	0.37	0.18	0.31	0.29	0.27	0.18	0.12	0.23	0.14	0.20
4	PS2	0.13	0.04	0.12	0.14	0.22	0.37	0.23	0.29	0.27	0.31	0.23	0.07	0.20	0.16	0.20
5	SE2	0.15	0.07	0.14	0.17	0.18	0.61	0.23	0.36	0.34	0.40	0.26	0.10	0.29	0.20	0.24
6	SPM	0.20	0.15	0.14	0.21	0.30	0.34	0.18	0.22	0.23	0.20	0.15	0.12	0.21	0.22	0.28
7	RSP	0.14	0.10	0.15	0.10	0.26	0.24	0.03	0.22	0.12	0.14	0.28	0.08	0.24	0.19	0.31
8	SCO	0.00	-.02	0.14	0.18	0.28	0.25	0.26	0.27	0.22	0.16	0.20	0.11	0.18	0.18	0.30
9	WAR	0.12	0.05	0.22	0.25	0.27	0.42	0.07	0.22	0.24	0.12	0.21	0.11	0.19	0.15	0.22
10	LPE	0.07	-.06	0.15	0.21	0.24	0.23	0.26	0.23	0.21	0.22	0.20	0.05	0.19	0.02	0.24
11	JUD	0.03	0.02	0.11	0.09	0.18	0.13	0.04	0.10	0.04	0.04	0.03	0.07	0.05	0.04	0.20
12	ANA	0.15	0.07	0.15	0.17	0.29	0.41	0.13	0.32	0.25	0.30	0.32	0.14	0.21	0.21	0.41
13	VOC	0.03	0.06	0.11	0.11	0.22	0.38	0.16	0.29	0.18	0.24	0.26	0.12	0.28	0.24	0.40
14	MAR	0.22	-.02	0.15	0.07	0.18	0.33	0.15	0.38	0.35	0.27	0.26	0.18	0.34	0.19	0.40
15	OLA	0.24	0.03	0.22	0.17	0.21	0.40	0.12	0.42	0.38	0.26	0.33	0.16	0.40	0.24	0.44
16	SST	0.21	0.04	0.22	0.09	0.24	0.33	0.14	0.42	0.35	0.24	0.32	0.15	0.33	0.24	0.41
17	MAT	0.29	-.01	0.22	0.17	0.24	0.50	0.18	0.47	0.42	0.30	0.33	0.09	0.36	0.14	0.36
18	SCI	0.23	-.04	0.18	0.13	0.24	0.38	0.14	0.43	0.37	0.26	0.30	0.11	0.37	0.09	0.35
19	GTP	0.26	0.04	0.23	0.16	0.24	0.44	0.17	0.46	0.41	0.31	0.34	0.14	0.39	0.23	0.42
20	CFS	1.00	0.13	0.24	0.35	0.24	0.22	0.00	0.11	0.24	0.22	0.17	0.13	0.18	0.15	0.15
21	MFS	0.13	1.00	0.05	0.18	-.02	0.10	0.01	0.08	0.01	-.02	-.01	0.04	0.02	0.59	0.00
22	DFS	0.24	0.05	1.00	0.22	0.31	0.14	0.05	0.21	0.24	0.14	0.36	0.09	0.12	0.04	0.14
23	NFS	0.35	0.18	0.22	1.00	0.27	0.25	0.29	0.14	0.25	0.29	0.02	0.01	0.11	0.22	0.23
24	EFS	0.24	-.02	0.31	0.27	1.00	0.23	0.10	0.14	0.23	0.17	0.20	0.15	0.20	0.02	0.21
25	CSS	0.22	0.10	0.14	0.25	0.23	1.00	0.12	0.33	0.41	0.44	0.27	0.11	0.36	0.21	0.30
26	MSS	0.08	0.01	0.05	0.29	0.10	0.12	1.00	0.19	0.10	0.30	-.01	0.07	0.16	0.04	0.14
27	DSS	0.11	0.08	0.21	0.14	0.14	0.33	0.19	1.00	0.29	0.31	0.23	0.10	0.29	0.14	0.23
28	NSS	0.24	0.01	0.24	0.25	0.23	0.41	0.10	0.29	1.00	0.41	0.27	0.10	0.21	0.09	0.22
29	ESS	0.22	-.02	0.14	0.29	0.17	0.44	0.30	0.31	0.41	1.00	0.20	0.15	0.22	0.11	0.29
30	CMS	0.17	-.01	0.36	0.02	0.20	0.27	-.01	0.23	0.27	0.20	1.00	0.19	0.16	0.12	0.18
31	MMS	0.13	0.04	0.09	0.01	0.15	0.11	0.07	0.10	0.10	0.15	0.19	1.00	0.07	0.06	0.06
32	DMS	0.18	0.02	0.12	0.11	0.20	0.36	0.16	0.29	0.21	0.22	0.16	0.07	1.00	0.14	0.16
33	NMS	0.15	0.59	0.04	0.22	0.02	0.21	0.04	0.14	0.09	0.11	0.12	0.06	0.14	1.00	0.18
34	EMS	0.15	0.00	0.14	0.23	0.21	0.30	0.14	0.23	0.22	0.29	0.18	0.06	0.16	0.18	1.00

TABLE : XVI - III

CORRELATIONAL STUDY : CA - 13 : CORRELATION MATRIX - TRANSFORMATION

	1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCD	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 DLA	16 SST	17 MAT	18 SCI	19 GTP
1 AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2 SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3 PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4 PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5 SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6 SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7 RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8 SCD	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9 WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10 LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11 JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12 ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13 VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14 MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15 DLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16 SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17 MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18 SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19 GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20 CFT	-.21	0.04	0.28	0.12	0.19	0.20	0.17	0.13	0.18	0.11	0.25	0.17	0.12	0.14	0.30	0.15	0.17	0.22	0.21
21 MFT	-.08	0.16	0.09	0.05	0.15	0.21	0.02	0.02	0.12	-.06	-.02	0.14	0.08	0.06	0.10	0.13	0.05	0.03	0.10
22 DFT	-.14	0.03	0.15	0.15	0.17	0.25	0.15	0.15	0.24	0.14	0.16	0.19	0.18	0.17	0.25	0.22	0.20	0.19	0.26
23 NFT	-.01	0.03	0.24	0.26	0.20	0.23	0.16	0.20	0.20	0.22	0.06	0.17	0.16	0.21	0.20	0.24	0.31	0.28	0.28
24 EFT	-.08	0.13	0.26	0.17	0.12	0.22	0.20	0.23	0.19	0.14	0.14	0.16	0.10	0.20	0.15	0.23	0.24	0.21	0.22
25 CST	-.19	0.24	0.25	0.24	0.30	0.10	0.36	0.34	0.23	0.22	0.13	0.36	0.34	0.32	0.35	0.34	0.30	0.27	0.33
26 MST	-.11	0.15	0.22	0.14	0.34	0.22	0.22	0.14	0.18	0.23	0.06	0.22	0.13	0.14	0.17	0.23	0.27	0.21	0.25
27 DST	-.24	0.08	0.21	0.16	0.16	0.13	0.09	0.10	0.03	0.20	0.00	0.16	0.15	0.19	0.24	0.17	0.23	0.19	0.23
28 NST	-.10	0.14	0.10	0.14	0.22	0.07	0.14	0.17	0.14	0.33	-.02	0.18	0.20	0.22	0.21	0.22	0.21	0.19	0.21
29 EST	-.10	0.21	0.19	0.28	0.20	0.27	0.17	0.23	0.19	0.17	0.08	0.17	0.20	0.28	0.26	0.22	0.26	0.24	0.28
30 CMT	-.14	0.10	0.15	0.11	0.13	0.07	0.28	0.24	0.08	0.07	0.02	0.31	0.25	0.14	0.19	0.22	0.23	0.15	0.20
31 MMT	-.23	0.06	0.09	0.03	0.13	0.07	0.01	0.10	0.07	0.12	-.03	0.16	0.07	0.08	0.10	0.07	0.13	0.09	0.12
32 DMT	-.10	0.20	0.23	0.17	0.21	0.17	0.38	0.29	0.19	0.14	0.20	0.27	0.24	0.35	0.36	0.38	0.33	0.35	0.39
33 NMT	-.02	0.23	0.23	0.14	0.22	0.14	0.12	0.19	0.19	0.06	0.03	0.27	0.20	0.10	0.15	0.16	0.12	0.06	0.15
34 EMT	0.09	0.10	0.17	0.14	0.19	0.17	0.05	0.14	0.12	0.20	0.06	0.10	0.12	0.07	0.10	0.08	0.09	0.09	0.11

....CONTD

CORRELATIONAL STUDY : CA - 13 : CORRELATION MATRIX - TRANSFORMATION(CONTD)

		20 CFT	21 MFT	22 DFT	23 NFT	24 EFT	25 CST	26 MST	27 DST	28 NST	29 EST	30 CMT	31 MMT	32 DMT	33 NMT	34 EMT
1	AGE	-.21	-.08	-.14	-.01	-.08	-.19	-.11	-.24	-.10	-.10	-.14	-.23	-.10	-.02	0.09
2	SE1	0.04	0.16	0.03	0.03	0.13	0.24	0.15	0.08	0.14	0.21	0.10	0.06	0.20	0.23	0.10
3	PS1	0.28	0.09	0.15	0.24	0.26	0.25	0.22	0.21	0.10	0.19	0.15	0.09	0.23	0.23	0.17
4	PS2	0.12	0.05	0.15	0.26	0.17	0.24	0.14	0.16	0.14	0.28	0.11	0.03	0.17	0.14	0.14
5	SE2	0.19	0.15	0.17	0.20	0.12	0.30	0.34	0.16	0.22	0.20	0.13	0.13	0.21	0.22	0.19
6	SPM	0.20	0.21	0.25	0.23	0.22	0.10	0.22	0.13	0.07	0.24	0.07	0.07	0.17	0.14	0.17
7	RSP	0.17	0.02	0.15	0.16	0.20	0.36	0.22	0.09	0.14	0.17	0.28	0.01	0.38	0.12	0.05
8	SCO	0.13	0.02	0.15	0.20	0.23	0.34	0.14	0.10	0.17	0.23	0.24	0.10	0.29	0.19	0.14
9	WAR	0.18	0.12	0.24	0.20	0.19	0.23	0.18	0.03	0.14	0.19	0.08	0.07	0.19	0.19	0.12
10	LPE	0.11	-.56	0.14	0.22	0.14	0.22	0.23	0.20	0.33	0.17	0.07	0.12	0.14	0.06	0.20
11	JUD	0.25	-.02	0.16	0.06	0.14	0.13	0.06	0.00	-.02	0.08	0.02	-.03	0.20	0.03	0.06
12	ANA	0.17	0.14	0.19	0.17	0.16	0.36	0.22	0.16	0.18	0.17	0.31	0.16	0.27	0.27	0.10
13	VOC	0.12	0.08	0.18	0.17	0.10	0.34	0.13	0.15	0.20	0.20	0.25	0.07	0.24	0.20	0.12
14	MAR	0.14	0.06	0.17	0.21	0.20	0.32	0.14	0.19	0.22	0.28	0.14	0.08	0.35	0.10	0.07
15	OLA	0.20	0.10	0.25	0.20	0.15	0.35	0.17	0.24	0.21	0.26	0.19	0.10	0.36	0.15	0.10
16	SST	0.15	0.13	0.22	0.20	0.23	0.34	0.23	0.17	0.22	0.22	0.22	0.07	0.38	0.16	0.08
17	MAT	0.17	0.05	0.20	0.31	0.24	0.30	0.27	0.23	0.21	0.26	0.23	0.13	0.33	0.12	0.09
18	SCI	0.22	0.03	0.19	0.28	0.21	0.27	0.21	0.19	0.19	0.24	0.15	0.09	0.35	0.06	0.09
19	GTP	0.21	0.10	0.26	0.28	0.22	0.33	0.25	0.23	0.21	0.28	0.20	0.12	0.39	0.15	0.11
20	CFT	1.00	0.00	0.24	0.17	0.08	0.11	0.16	0.08	0.06	-.09	0.04	0.05	0.16	0.02	0.01
21	MFT	0.00	1.00	0.15	0.08	0.09	0.03	0.09	0.09	0.01	0.16	0.00	-.05	0.06	0.49	0.05
22	DFT	0.24	0.15	1.00	0.26	0.09	0.05	0.20	0.12	0.12	0.14	0.21	0.13	0.05	0.08	-.05
23	NFT	0.17	0.08	0.26	1.00	0.34	0.12	0.38	0.20	0.28	0.26	0.09	0.10	0.15	0.20	0.22
24	EFT	0.08	0.09	0.09	0.34	1.00	0.17	0.11	0.16	0.10	0.04	0.13	0.04	0.13	0.16	0.09
25	CST	0.11	0.03	0.05	0.12	0.17	1.00	0.24	0.11	0.25	0.09	0.21	0.15	0.26	0.25	0.06
26	MST	0.16	0.09	0.20	0.38	0.11	0.24	1.00	0.20	0.23	0.09	0.13	0.29	0.27	0.14	0.02
27	DST	0.08	0.09	0.12	0.20	0.16	0.11	0.20	1.00	0.19	0.11	0.20	0.10	0.11	0.13	0.07
28	NST	0.06	0.01	0.12	0.28	0.10	0.25	0.23	0.19	1.00	0.07	0.21	0.17	0.17	0.08	0.03
29	EST	-.09	0.16	0.14	0.26	0.04	0.09	0.09	0.11	0.07	1.00	0.11	-.02	0.21	0.09	0.19
30	CMT	0.04	0.00	0.21	0.09	0.13	0.21	0.13	0.20	0.21	0.11	1.00	0.12	0.31	0.07	-.01
31	MMT	0.05	-.05	0.13	0.10	0.04	0.15	0.29	0.10	0.17	-.02	0.12	1.00	0.07	0.08	-.01
32	DMT	0.16	0.06	0.05	0.15	0.13	0.26	0.27	0.11	0.17	0.21	0.31	0.07	1.00	0.11	0.18
33	NMT	0.02	0.49	0.08	0.20	0.16	0.25	0.14	0.13	0.08	0.09	0.07	0.08	0.11	1.00	0.06
34	EMT	0.01	0.05	-.05	0.22	0.09	0.06	0.02	0.07	0.03	0.19	-.01	-.01	0.18	0.06	1.00

TABLE : XVI - n

CORRELATIONAL STUDY : CA - 14 : CORRELATION MATRIX - IMPLICATION

	1 AGE	2 SE1	3 PS1	4 PS2	5 SE2	6 SPM	7 RSP	8 SCD	9 WAR	10 LPE	11 JUD	12 ANA	13 VOC	14 MAR	15 OLA	16 SST	17 MAT	18 SCI	19 GTP
1 AGE	1.00	-.17	-.26	-.22	-.24	-.16	-.17	-.17	-.16	-.17	-.14	-.26	-.21	-.27	-.36	-.27	-.30	-.28	-.34
2 SE1	-.17	1.00	0.44	0.45	0.54	0.41	0.09	0.42	0.33	0.38	0.13	0.41	0.37	0.17	0.22	0.20	0.31	0.18	0.24
3 PS1	-.26	0.44	1.00	0.53	0.45	0.54	0.24	0.43	0.34	0.39	0.24	0.53	0.47	0.35	0.43	0.40	0.48	0.41	0.46
4 PS2	-.22	0.45	0.53	1.00	0.44	0.43	0.16	0.50	0.41	0.47	0.27	0.41	0.50	0.35	0.37	0.36	0.38	0.36	0.41
5 SE2	-.24	0.54	0.45	0.44	1.00	0.48	0.19	0.39	0.38	0.33	0.17	0.45	0.41	0.23	0.33	0.28	0.42	0.30	0.36
6 SPM	-.16	0.41	0.54	0.43	0.48	1.00	0.13	0.38	0.44	0.26	0.42	0.52	0.45	0.21	0.29	0.28	0.31	0.25	0.31
7 RSP	-.17	0.09	0.24	0.16	0.19	0.13	1.00	0.34	0.25	0.25	0.16	0.34	0.30	0.35	0.37	0.42	0.30	0.35	0.38
8 SCD	-.17	0.43	0.43	0.50	0.39	0.38	0.34	1.00	0.45	0.51	0.27	0.49	0.63	0.30	0.35	0.34	0.28	0.30	0.34
9 WAR	-.16	0.33	0.34	0.41	0.38	0.44	0.25	0.45	1.00	0.34	0.36	0.42	0.43	0.25	0.27	0.29	0.31	0.26	0.32
10 LPE	-.17	0.38	0.39	0.47	0.33	0.26	0.25	0.51	0.34	1.00	0.11	0.33	0.40	0.31	0.33	0.32	0.28	0.33	0.33
11 JUD	-.14	0.13	0.24	0.27	0.17	0.42	0.16	0.27	0.36	0.11	1.00	0.38	0.37	0.11	0.21	0.17	0.09	0.14	0.17
12 ANA	-.26	0.41	0.53	0.41	0.45	0.52	0.34	0.49	0.42	0.33	0.38	1.00	0.59	0.34	0.43	0.42	0.38	0.37	0.43
13 VOC	-.21	0.37	0.47	0.50	0.41	0.45	0.30	0.63	0.43	0.40	0.37	0.59	1.00	0.37	0.45	0.39	0.37	0.34	0.42
14 MAR	-.27	0.17	0.35	0.35	0.23	0.21	0.35	0.30	0.25	0.31	0.11	0.34	0.37	1.00	0.85	0.88	0.72	0.85	0.91
15 OLA	-.36	0.22	0.43	0.37	0.33	0.29	0.37	0.35	0.27	0.33	0.21	0.43	0.45	0.85	1.00	0.83	0.77	0.80	0.91
16 SST	-.27	0.20	0.40	0.36	0.28	0.28	0.42	0.34	0.29	0.32	0.17	0.42	0.39	0.88	0.83	1.00	0.77	0.86	0.92
17 MAT	-.30	0.31	0.48	0.38	0.42	0.31	0.30	0.28	0.31	0.28	0.09	0.38	0.37	0.72	0.77	0.77	1.00	0.83	0.88
18 SCI	-.28	0.18	0.41	0.36	0.30	0.25	0.35	0.30	0.26	0.33	0.14	0.37	0.34	0.85	0.80	0.86	0.83	1.00	0.92
19 GTP	0.34	0.24	0.46	0.41	0.36	0.31	0.38	0.34	0.32	0.33	0.17	0.43	0.42	0.91	0.91	0.92	0.88	0.92	1.00
20 CFI	0.00	0.07	0.00	0.00	0.04	0.06	-.01	0.00	0.11	-.02	0.00	-.05	-.01	0.06	0.07	0.06	0.14	0.04	0.08
21 MFI	-.06	0.09	0.04	0.04	0.14	0.13	0.08	0.01	0.04	-.04	-.03	0.15	0.04	0.01	0.07	0.07	0.03	-.01	0.07
22 DFI	-.07	-.06	0.08	-.03	0.03	-.02	0.13	0.02	0.10	0.02	0.04	0.19	0.12	0.13	0.12	0.15	0.13	0.15	0.14
23 NFI	-.19	0.19	0.35	0.32	0.31	0.25	0.28	0.22	0.33	0.18	0.13	0.29	0.20	0.32	0.38	0.36	0.43	0.38	0.43
24 EFI	-.06	0.22	0.19	0.26	0.22	0.28	0.22	0.18	0.20	0.17	0.28	0.25	0.20	0.06	0.16	0.19	0.16	0.15	0.17
25 CSI	-.10	0.08	0.13	0.10	0.17	0.14	0.23	0.08	0.18	0.10	0.16	0.20	0.16	0.11	0.14	0.11	0.16	0.10	0.16
26 MSI	-.03	0.17	0.13	0.12	0.09	0.08	0.01	0.10	0.08	0.13	0.07	0.13	0.05	0.09	0.09	0.12	0.13	0.10	0.12
27 DSI	-.09	0.11	0.28	0.16	0.28	0.15	0.31	0.15	0.15	0.17	0.06	0.25	0.23	0.26	0.35	0.32	0.42	0.36	0.39
28 NSI	-.18	0.19	0.37	0.26	0.34	0.26	0.18	0.21	0.30	0.17	0.03	0.26	0.21	0.38	0.44	0.44	0.49	0.45	0.49
29 ESI	-.10	0.05	0.18	0.11	0.12	0.16	0.04	0.04	0.07	0.08	0.09	0.04	0.01	0.07	0.06	0.03	0.09	0.03	0.07
30 CMI	-.13	0.20	0.18	0.15	0.19	0.14	0.13	0.26	0.08	0.18	0.08	0.29	0.23	0.19	0.21	0.24	0.22	0.17	0.23
31 MMI	-.23	0.11	0.08	0.09	0.15	0.06	0.06	0.09	0.08	0.20	0.02	0.14	0.06	0.11	0.16	0.15	0.19	0.13	0.18
32 DMI	-.11	0.16	0.16	0.13	0.23	0.08	0.24	0.23	0.14	0.15	0.03	0.19	0.14	0.30	0.22	0.32	0.19	0.23	0.26
33 NMI	-.26	0.25	0.33	0.27	0.41	0.30	0.33	0.26	0.28	0.16	0.06	0.33	0.37	0.24	0.37	0.29	0.33	0.23	0.36
34 EMI	-.25	0.05	0.28	0.25	0.21	0.13	0.31	0.22	0.25	0.15	0.06	0.29	0.24	0.31	0.34	0.37	0.37	0.36	0.39

....CONTD

CORRELATIONAL STUDY : CA - 14 : CORRELATION MATRIX - IMPLICATION(CONTD)

		20 CFI	21 MFI	22 DFI	23 NFI	24 EFI	25 CSI	26 MSI	27 DSI	28 NSI	29 ESI	30 CMI	31 MMI	32 DMI	33 NMI	34 EMI
1	AGE	0.00	-.06	-.07	-.19	-.06	-.10	-.03	-.09	-.18	-.10	-.13	-.23	-.11	-.26	0.25
2	SE1	0.07	0.09	-.06	0.19	0.22	0.08	0.17	0.11	0.19	0.05	0.20	0.11	0.16	0.25	0.05
3	PS1	0.00	0.04	0.08	0.35	0.19	0.13	0.13	0.28	0.37	0.18	0.18	0.08	0.16	0.23	0.28
4	PS2	0.00	0.04	-.03	0.32	0.26	0.10	0.12	0.16	0.26	0.11	0.15	0.09	0.13	0.27	0.25
5	SE2	0.04	0.14	0.03	0.31	0.22	0.17	0.09	0.28	0.34	0.12	0.19	0.15	0.23	0.41	0.21
6	SPM	0.06	0.13	-.02	0.25	0.28	0.14	0.08	0.15	0.24	0.16	0.14	0.06	0.08	0.30	0.13
7	RSP	-.01	0.08	0.13	0.28	0.22	0.23	0.01	0.31	0.18	0.04	0.13	0.06	0.24	0.33	0.31
8	SCO	0.00	0.01	0.02	0.22	0.18	0.08	0.10	0.15	0.21	0.04	0.26	0.09	0.23	0.26	0.22
9	WAR	0.11	0.04	0.10	0.33	0.20	0.18	0.08	0.15	0.30	0.07	0.08	0.08	0.14	0.28	0.25
10	LPE	-.02	-.04	0.02	0.18	0.17	0.10	0.13	0.17	0.17	0.08	0.18	0.20	0.15	0.16	0.15
11	JUD	0.00	-.03	0.04	0.13	0.28	0.16	0.07	0.06	0.03	0.09	0.08	0.02	0.03	0.06	0.06
12	ANA	-.05	0.15	0.19	0.29	0.25	0.20	0.13	0.25	0.26	0.04	0.29	0.14	0.19	0.33	0.29
13	VOC	-.01	0.04	0.12	0.20	0.20	0.16	0.05	0.23	0.21	0.01	0.23	0.06	0.14	0.37	0.24
14	MAR	0.06	0.01	0.13	0.32	0.06	0.11	0.09	0.26	0.38	0.07	0.19	0.11	0.30	0.24	0.31
15	OLA	0.07	0.07	0.12	0.38	0.16	0.14	0.09	0.35	0.44	0.06	0.21	0.16	0.22	0.37	0.34
16	SST	0.06	0.07	0.15	0.36	0.19	0.11	0.12	0.32	0.44	0.03	0.24	0.15	0.32	0.29	0.37
17	MAT	0.14	0.03	0.13	0.43	0.16	0.16	0.13	0.42	0.49	0.09	0.22	0.19	0.19	0.33	0.37
18	SCI	0.04	-.01	0.15	0.38	0.15	0.10	0.10	0.36	0.45	0.03	0.17	0.13	0.23	0.23	0.36
19	GTP	0.08	0.07	0.14	0.43	0.17	0.16	0.12	0.39	0.49	0.07	0.23	0.18	0.26	0.36	0.39
20	CFI	1.00	0.05	0.00	0.13	0.03	0.02	0.01	0.13	0.06	0.07	0.05	0.09	0.13	0.03	0.00
21	MFI	0.05	1.00	0.08	0.14	-.01	0.08	-.01	0.11	0.04	0.04	0.13	-.03	-.01	0.38	0.02
22	DFI	0.00	0.08	1.00	0.11	0.05	0.13	-.06	0.17	0.05	0.05	0.30	-.04	0.10	-.05	0.04
23	NFI	0.13	0.14	0.11	1.00	0.31	0.15	0.11	0.38	0.41	0.22	0.18	0.17	0.12	0.34	0.25
24	EFI	0.03	-.01	0.05	0.31	1.00	0.28	-.05	0.24	0.26	0.18	0.13	0.17	0.11	0.19	0.13
25	CSI	0.02	0.08	0.13	0.15	0.28	1.00	0.07	0.20	0.06	0.14	0.04	0.02	0.16	0.19	0.10
26	MSI	0.01	-.01	0.06	0.11	-.05	0.07	1.00	0.06	0.10	-.01	0.15	0.35	0.13	0.00	0.01
27	DSI	0.13	0.11	0.17	0.38	0.24	0.20	0.06	1.00	0.38	0.03	0.26	0.13	0.22	0.30	0.16
28	NSI	0.06	0.04	0.05	0.41	0.26	0.06	0.10	0.38	1.00	0.02	0.18	0.19	0.19	0.23	0.21
29	ESI	0.07	0.04	0.05	0.22	0.18	0.14	-.01	0.03	0.02	1.00	-.03	0.03	0.08	0.16	0.00
30	CMI	0.05	0.13	0.30	0.18	0.13	0.04	0.15	0.26	0.18	-.03	1.00	0.10	0.22	0.13	0.22
31	MMI	0.09	-.03	-.04	0.17	0.17	0.02	0.35	0.13	0.19	0.13	0.10	1.00	0.07	0.10	0.02
32	DMI	0.13	-.01	0.10	0.12	0.11	0.16	0.13	0.22	0.19	0.08	0.22	0.07	1.00	0.19	0.15
33	NMI	0.03	0.38	-.05	0.34	0.19	0.19	0.00	0.30	0.23	0.16	0.13	0.10	0.19	1.00	0.35
34	EMI	-.05	0.02	0.04	0.25	0.13	0.10	0.01	0.16	0.21	-.01	0.22	0.02	0.15	0.35	0.00

TABLE - XVII - a

FACTOR ANALYSIS OF TESTS OF FIGURAL CONTENT

Factors emerged and the variance explained

FA - 1 : CO - 1

No. of variables : 49

No. of Rotated Factors : 12

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP.	22.7
2	Memory MFU, MFC, MFS, MFT, MFI, (MFR)	31.4
3	Academic Intelligence SE1, PS1, PS2, SE2, SPM, SCO, ANA, VOC, (WAR, LPE)	37.2
4	Evaluation EFU, EFR, EFS, (EFC, EFT, EFI)	42.4
5	Divergent Thinking DFU, EFC, DFS, DFT	46.4
6	JUD	50.0
7	Convergent Thinking NFS, NFT, (CFS, NFU, NFR)	53.2
8	AGE, (DFC)	55.9
9	CFI	58.5
10	---	60.9
11	Divergent Thinking DFI, (DFR, DFS .38, DFC .30)	63.1
12	NFC	65.4

TABLE - XVII - b

FACTOR ANALYSIS OF TESTS OF SYMBOLIC CONTENT

Factors emerged and the variance explained

FA- 2 : CO - 2

No. of variables : 49

No. of Rotated Factors : 12

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	27.8
2	Convergent Thinking, Divergent Thinking NSC, NSI, (CSS, DSC, DSR, DSI, NSU, NSC, NSR, NSS, NSI, ESC, SE2)	34.0
3	Academic Intelligence PS1, PS2, SPM, SCO, WAR, JUD, VOC, (SE2,LPE, ANA, SE1)	39.1
4	Cognition CSU, CSC, CSR, CSI, (CSS, CSI)	43.7
5	Memory MSC, MSI, (MSU, MSS, MST)	47.8
6	DSU, NST, (NSR .37)	51.2
7	---	54.1
8	MSR	56.7
9	ESR, ESS	59.2
10	ESI	61.5
11	ESU	63.7
12	AGE	65.9

TABLE - XVII - c

FACTOR ANALYSIS OF TESTS OF SEMANTIC CONTENT

Factors emerged and the variance explained

FA - 3 : CO - 3

No. of Variables : 50

No. of Rotated Factors : 11

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	27.2
2	Convergent Thinking NMU[i] , NMC, NMR, NMS, NMT, NMI, NMU[ii])	34.7
3	Academic Intelligence SE1, PS1, PS2, SE2, SCO, LPE, VOC, (SPM, WAR, ANA)	40.1
4	Cognition CMU, CMC, CMR, CMT, (CMI, EMC)	45.1
5	Divergent Thinking DMU, DMR, DMT, DMI,(DMC, DMS)	49.6
6	Memory MMU, MMC, MMT, MMT	53.2
7	RSP	56.0
8	JUD	58.6
9	Evaluation EMU, EMT	61.1
10	MMS	63.4
11	AGE	65.4

[Tests of semantic evaluation seem to be more loaded by independent factors. Both NMU (i) and NMU (ii) have common property of NM but two do not measure a single factor].

TABLE - XVII - d

FACTOR ANALYSIS OF TESTS OF COGNITION

Factors emerged and the variance explained

FA - 4 : OP - 1

No. of variables : 37

No. of Rotated Factors : 10

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	29.5
2	Academic Intelligence PS1, PS2, SE2, SCO, LPE, SE1, (SPM, WAR,ANA, VOC)	37.3
3	Symbolic Cognition CSU, CSC, CSR, CSS, CST, CSI	43.9
4	Semantic Cognition CMU, CMC, CMR, CMS, CMT, (CMI)	49.8
5	CFU	54.3
6	JUD	58.2
7	CFR, CFT, (CFS)	61.5
8	CFI	64.4
9	CFC, (RSP)	69.3
10	CMI	71.7

TABLE - XVII - c

FACTOR ANALYSIS OF TESTS OF MEMORY

Factors emerged and the variance explained

FA - 5 : OP - 2

No. of variables : 37

No. of Rotated Factors : 10

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	26.0
2	Figural Memory MFU, MFC, MFS, MFT, MFI, (MFR)	37.0
3	Academic Intelligence SE1, PS1, PSE, SE2, SPM, SCO, LPE, VOC, (WAR, ANA)	44.5
4	Symbolic Memory MSU, MSC, MSS, MST, MSI, (MMI)	51.1
5	Reading RSP, (SCO)	55.6
6	Semantic Memory MMU, MMC, MMT, (MMI)	58.9
7	MSR	62.0
8	JUD	64.9
9	MMS	67.7
10	AGE, MSU	70.2

TABLE - XVII - f

FACTOR ANALYSIS OF TESTS OF DIVERGENT THINKING

Factors emerged and the variance explained

FA - 6 : OP - 3

No. of variables : 37

No. of Rotated Factors : 10

Factor	Variables significantly loaded	% Variation Explained
1	Academic Intelligence PS1, PS2, SPM, SCO, WAR, JUD, ANA, VOC, (SE1, SE2, LPE)	29.5
2	Semantic Divergent Thinking DMU, DMR, DMI, (DMC, DMS, DMT)	37.2
3	School Marks MAR, OLA, SST, MAT, SCI, GTP	44.5
4	DSC, DSR, (DSS)	48.8
5	DSU	52.9
6	DFU, DFS, DFT, (DFC, NFU)	56.7
7	DST, DSI, (DFC)	60.0
8	DFI	63.3
9	RSP	66.0
10	AGE	

TABLE - XVII - g

FACTOR ANALYSIS OF TESTS OF CONVERGENT THINKING

Factors emerged and the variance explained

FA - 7 : OP 4

No. of Variables : 38

No. of Rotated Factors : 10

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	30.8
2	Semantic Convergent Thinking NMU[i], NMC, NMR, NMS, NMT, NMI, NMU[ii]	40.7
3	Academic Intelligence SE1, PS1, PS2, SE2, SPM, SCQ, LPE, VOC, (WAR, ANA)	47.6
4	Symbolic Convergent NSC, NSS, NSI, NSU, NSR, NST, NFI	53.7
5	Figural Convergent NFS, NFT, NFU, NFR	57.3
6	NST	60.7
7	NFC	63.7
8	JUD	66.3
9	AGE	68.7
10	RSP, (NMU[i])	71.1

TABLE - XVII - h

FACTOR ANALYSIS OF TESTS OF EVALUATION

Factors emerged and the variance explained

FA - 8 : OP 5

No. of variables : 37

No. of Rotated Factors : 10

Factors	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	29.4
2	Academic Intelligence PS2, SPM, SCO, WAR, JUD, ANA, VOC, (SE1, PS1, SE2, LPE)	37.3
3	Figural Evaluation EFU, EFC, EFR, EFS, EFT, (EFI)	42.9
4	SE1, SE2, ESS, (ESU, ESC, ESR)	47.2
5	EMT, (ESR)	51.2
6	EMC	54.6
7	EMS, (RSP)	57.8
8	EMU, (EMI)	61.0
9	AGE, (EMR)	63.8
10	EST, ESI - nonsence syllables	66.4

TABLE - XVII - i

FACTOR ANALYSIS OF TESTS OF UNITS

Factors emerged and the variance explained

FA - 9 : PR - 1

No. of variables : 35

No. of Rotated Factors : 10

Factor	Variables significantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	28.9
2	Academic Intelligence SE1, PS1, PS2, SE2, SCO, LPE, VOC, (SPM, WAR)	36.8
3	CSU, MSU	42.7
4	MFU, NMU[i]	47.8
5	RSP, CMU	52.6
6	DFU, DSU, DMU	56.3
7	EMU	59.9
8	JUD	63.0
9	CFU	66.1
10	EFU	69.0

TABLE - XVII - j

FACTOR ANALYSIS OF TESTS OF CLASSES

Factors emerged and the variance explained

FA - 10 : PR - 2

No. of variables : 34

No. of Rotated Factors : 10

Factor	Variables significantly loaded *	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	30.5
2	Academic Intelligence SE1, PS1, PS2, SE2, SPM, SCO, LPE, VOC	38.6
3	NFC, EFC, DSC, NSC,(ESC)	43.8
4	DFC, CMC	48.1
5	MFC, NMC	52.3
6	MSC, MMC	56.0
7	JUD, (ANA)	59.6
8	CFC	62.9
9	AGE, CSC	66.0
10	(RSP, NFC, DMC)	68.7

(* : With Rotated Loadings more than 0.6)

TABLE - XVII - k

FACTOR ANALYSIS OF TESTS RELATIONS

Factors emerged and the variance explained

FA - 11 : PR - 3

No. of variables : 34

No. of Rotated Factors : 10

Factor	Variables significantly loaded *	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	32.2
2	Academic Intelligence SE1, PS1, PS2, SPM, SCO, ANA, VOC, (SE2, LPE, JUD)	40.1
3	CMR, EMR, (CFR, NFR, MMR)	45.0
4	CSR, (NSR, SE2)	49.4
5	DFR, (DMR)	53.2
6	MFR, NMR	56.8
7	EFR	60.2
8	MSR	63.3
9	ESR	66.2
10	RSP	69.0

(* : Having Rotated Loadings more than 0.6)

TABLE - XVII - 1

FACTOR ANALYSIS OF TESTS OF SYSTEMS

Factors emerged and the variance explained

FA - 12 : PR - 4

No. of variables : 34

No. of Rotated Factors : 10

Factors	Variables significantly loaded *	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	30.4
2	Academic Intelligence SPM, WAR, JUD, ANA, (SE1, PS1, SCO, VOC)	38.6
3	Symbolic System SE1, SE2, CSS, ESS, NSS	44.1
4	MFS, NMS	49.0
5	CFS, NFS, (EFS)	53.4
6	SCO, LPE, MSS, (SE1, PS2)	57.3
7	DFS, CMS	60.6
8	MMS	63.7
9	EMS	66.6
10	AGE, DSS	69.4

(* : With Rotated Loadings more than 0.6)

TABLE - XVII - m

FACTOR ANALYSIS OF TESTS OF TRANSFORMATIONS

Factors emerged and the variance explained

FA - 13 : PR - 5

No. of variables : 34

No. of Rotated Factors : 10

Factors	Variables significantly loaded *	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP	28.1
2	Academic Intelligence SE1, PS1, PS2, SE2, SPM, SCO, WAR, LPE	36.1
3	MST, MMT, (NST)	41.3
4	MFT, NMT	45.9
5	CFT, (JUD)	50.2
6	EMT, (EST, DMT, NFT)	54.4
7	RSP, CMT, DMT, (CST, SCO, ANA)	58.4
8	DFT	61.6
9	NFT, EFT	64.7
10	DST	67.7

(* : With Rotated Loadings more than 0.6)

TABLE - XVII - n

FACTOR ANALYSIS OF TESTS IMPLICATIONS

Factors emerged and the variance explained

FA - 14 : PR - 6

No. of variables : 34

No. of Rotated Factors : 10

Factor	Variables singificantly loaded	% Variation Explained
1	School Marks MAR, OLA, SST, MAT, SCI, GTP, (NSI)	28.6
2	Academic Intelligence SE1, PS1, PS2, SE2, SPM, SCO, LPE, VOC, (WAR, ANA)	36.8
3	NFI, EFI, DSI, NSI	41.9
4	MSI, MMI	46.4
5	DFI, CMI	50.5
6	MFI, NMI	54.4
7	CFI	57.8
8	RSP, DMT, (CSI) *	61.1
9	JUD, (SPM, ANA)	64.2
10	ESI	67.2

(* : Having Rotated Loadings more than 0.6)

TABLE : XVIII - a

FACTOR ANALYSIS STUDY : FA-1 : Unrotated Factor Matrix - FIGURAL TESTS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12	13
01	AGE	-39	06	-08	04	-07	-18	06	52	09	25	02	32	09
02	S E 1	46	-00	-44	-27	-10	-14	27	-10	22	-28	06	03	09
03	P S 1	65	-12	-23	-23	-05	09	08	08	-08	-17	25	10	01
04	P S 2	69	-13	-28	-24	-04	11	16	10	08	-03	03	09	02
05	S E 2	58	12	-28	-18	01	11	20	-11	08	-28	02	07	16
06	S P M	58	07	-37	-16	-03	31	-08	11	17	-01	12	02	06
07	R S P	47	-04	05	-01	-01	-15	-22	-06	-28	28	-12	00	31
08	S C O	57	14	-40	22	15	-15	11	09	-11	19	-23	-15	-03
09	W A R	56	-00	-30	-06	14	16	05	03	12	25	08	02	-03
10	L P E	51	-17	-26	-08	03	-09	29	-04	-11	12	-33	-14	01
11	J U D	34	-07	-33	-11	05	29	-40	03	03	32	16	07	-20
12	A N A	64	-05	-28	-25	12	01	-11	-07	-13	05	13	-01	-02
13	V O C	60	-15	-30	-35	21	-01	-03	-01	-07	21	-07	-01	-08
14	M A R	69	-27	52	-20	-06	-09	00	01	02	10	-08	00	-03
15	O L A	77	-21	41	-19	-00	-04	-05	-04	02	02	-09	06	-04
16	S S T	76	-22	45	-18	-05	-15	-08	04	03	06	-03	01	01
17	M A T	76	-21	36	-07	-06	-08	09	02	09	-11	05	11	-05
18	S C 1	74	-28	45	-12	-09	-08	-02	04	-01	03	-02	07	-01
19	G T P	82	-21	46	-16	-05	-07	-02	02	03	-00	-04	04	-03
20	C F U	30	05	13	29	12	17	29	-34	08	33	-03	-34	11
21	C F C	35	-10	18	15	-03	24	24	-01	22	-17	32	00	-21
22	C F R	60	-02	00	14	-20	23	-15	07	06	-17	05	04	20
23	C F S	37	16	22	42	01	34	03	-06	-02	05	-03	07	11
24	C F T	31	-03	-01	04	02	48	-29	-00	-29	-18	-02	-06	10

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12	13
26	M F U	14	32	05	-21	-11	-19	02	-06	03	01	01	-05	05
27	M F C	27	74	12	-15	-09	-00	03	13	06	01	01	01	-04
28	M F R	19	56	02	02	04	04	-04	-33	04	18	-08	25	-06
29	M F S	16	30	11	-20	02	-02	-14	05	-12	03	02	-11	-06
30	M F T	20	78	10	-33	-08	-01	-01	-06	08	-06	00	-02	03
31	M F I	19	83	13	-25	13	-07	-03	01	-06	-07	02	-06	03
32	D F U	28	14	01	33	51	02	-17	-03	11	-28	-33	-05	-24
33	D F C	29	03	00	05	57	-24	-10	23	16	-08	-04	24	15
34	D F R	32	-01	-09	11	44	-38	22	-07	-07	-08	24	08	-21
35	D F S	37	07	03	38	51	-09	-12	03	11	-10	06	-08	10
36	D F T	39	16	05	22	20	32	-18	18	19	-05	-39	-17	-01
37	D F I	18 –	-00	12	15	37	-22	-15	-19	-19	13	44	-10	-03
38	N F U	34	09	01	29	02	-08	43	00	-20	-10	02	-13	36
39	N F C	25	00	-21	19	-19	-02	10	-40	-18	-03	-18	45	-21
40	N F R	62	07	-03	15	-04	14	-07	09	-20	-12	09	16	-16
41	N F S	38	30	-10	36	32	11	34	18	-17	16	01	27	03
42	N F T	44	21	02	30	-04	13	25	40	-34	04	-05	11	-16
43	N F I	58	12	04	20	-08	03	-03	01	09	-02	19	10	29
44	E F U	42	07	-01	37	-46	-10	-14	-04	01	-01	-07	-17	-15
45	E F C	47	10	-19	27	-20	-27	-11	-25	-16	-14	-09	04	-16
46	E F R	26	-04	-23	23	-24	-46	-19	20	20	-16	-08	-12	-11
47	E F S	49	-01	-26	42	-16	-22	-15	-04	17	15	13	-10	12
48	E F T	40	15	-02	27	-27	-20	-01	24	-15	07	13	-33	-19
49	E F I	37	02	-33	19	-19	-17	-36	-12	19	05	00	22	26

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12
26	M F U	-03	88	-03	11	-06	-11	01	02	06	02	03	04
27	M F C	09	79	-05	07	02	03	17	08	08	-08	-07	-04
28	M F R	00	53	02	-03	08	14	05	-04	25	08	08	42
29	M F S	-01	85	03	02	04	11	09	-05	-06	08	05	-09
30	M F T	06	87	-10	-02	-02	00	-04	-02	03	-08	-06	02
31	M F I	02	89	-04	-06	12	-02	06	-03	-05	00	10	-04
32	D F U	04	07	-02	08	81	-12	07	-15	-01	02	05	08
33	D F C	17	04	-16	-04	59	-01	02	38	-05	-01	30	01
34	D F R	10	-01	-27	03	24	-26	14	09	-02	-06	58	11
35	D F S	11	01	-05	17	61	06	14	-06	10	-08	38	-04
36	D F T	15	13	-09	11	59	24	18	-16	16	05	28	-13
37	D F I	12	01	07	05	07	11	01	-13	-01	02	72	-04
38	N F U	10	03	-14	14	06	-31	49	-20	07	-05	14	04
39	N F C	04	-05	-12	10	-04	-01	18	-06	00	04	-05	73
40	N F R	32	10	-23	20	13	25	40	-07	-15	-16	06	17
41	N F S	03	17	-14	07	09	05	70	14	19	-03	07	21
42	N F T	18	13	-10	11	09	05	78	07	-06	02	-04	-01
43	N F I	33	14	-17	30	10	17	25	-02	13	-25	13	14
44	E F U	22	06	01	65	-04	05	19	-20	08	00	-14	10
45	E F C	14	10	-17	52	08	-05	14	-18	-12	06	10	41
46	E F R	06	-03	-14	70	14	-15	-07	18	-09	00	-05	-04
47	E F S	10	-06	-21	67	09	14	12	-02	24	-02	20	10
48	E F T	12	14	-12	58	-10	00	36	-09	-01	06	10	-23

TABLE : XVIII - b

FACTOR ANALYSIS STUDY : FA-2 : Unrotated Factor Matrix - SYMBOLIC TESTS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12	13
01	AGE	-39	-00	-02	-16	05	-00	-41	-08	36	-35	-04	-34	-03
02	S E 1	53	-34	17	-27	-14	-00	01	-28	14	11	17	-11	-11
03	P S 1	64	-09	29	-10	-09	-11	-03	13	-09	13	-00	-20	-19
04	P S 2	59	-14	39	-19	-07	01	13	-11	01	-04	12	-02	-08
05	S E 2	64	-31	06	-11	-12	-13	-05	-13	-03	23	-03	-02	-06
06	S P M	51	-23	43	-09	-11	-27	-07	01	-21	04	-07	-18	10
07	R S P	45	04	07	31	11	15	-07	30	20	-24	-13	20	-10
08	S C O	54	-21	45	-08	06	33	05	-01	12	-04	-16	-05	03
09	W A R	51	-20	36	01	-11	03	-23	-07	-13	-18	-10	06	20
10	L P E	50	-12	25	-24	14	32	08	15	08	-05	04	-10	-19
11	J U D	27	-17	51	12	03	-18	-16	13	-24	-18	-10	26	15
12	A N A	63	-23	34	13	04	08	-11	09	-04	15	-00	-01	03
13	V O C	60	-17	46	06	-00	21	-05	01	02	02	01	-02	02
14	M A R	69	56	08	14	12	09	15	-02	08	-04	11	-02	07
15	O L A	76	46	10	19	09	04	11	-01	-03	04	07	-02	03
16	S S T	73	52	11	17	17	04	04	-02	05	-03	02	-01	-01
17	M A T	78	43	-03	04	-01	-12	-02	-06	-03	06	01	-04	-07
18	S C I	73	55	06	12	09	-01	04	-03	03	02	01	-04	-02
19	G T P	81	52	06	14	09	-03	07	-02	01	01	03	-01	01
20	C S U	34	-39	-14	60	18	10	07	-19	-02	01	-12	-09	01
21	C S C	51	-30	-30	25	-16	-03	29	-01	-02	02	-17	-07	-07
22	C S R	34	-40	-20	56	04	03	11	-09	11	16	11	-24	14
23	C S S	69	-26	-18	21	-19	-10	-08	-13	-07	07	13	08	01
24	C S T	54	-24	-20	37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12	13
26	M S U	40	-19	-08	-09	49	-06	30	-08	00	-01	-18	-03	07
27	M S C	34	-15	-07	-17	59	-00	07	12	-18	-13	28	01	-04
28	M S R	23	-14	-12	-06	17	10	-27	47	17	44	-11	12	19
29	M S S	32	-18	-06	-35	38	-12	23	-05	27	-03	-26	-07	-18
30	M S T	43	-25	-30	-05	46	-15	-16	22	-13	01	-11	-05	-04
31	M S I	24	-20	-15	-16	60	-17	-12	-10	-06	-05	31	11	12
32	D S U	18	-12	-14	-22	-25	66	11	01	07	-09	-00	14	12
33	D S C	70	-04	-13	-05	-12	-21	-21	-03	04	-18	-04	13	-16
34	D S R	63	01	-24	-10	-13	-23	-11	11	16	-04	-04	08	-10
35	D S S	55	10	-02	-09	00	-10	-24	-05	38	09	08	-11	-05
36	D S T	32	03	-20	-08	-19	16	12	48	-28	20	13	-17	-18
37	D S I	49	09	-24	10	-11	-05	-31	19	09	04	-26	-08	01
38	N S U	57	07	-22	-08	-20	-02	03	-05	-21	04	04	-07	16
39	N S C	54	11	-28	-27	-04	04	-19	-12	-22	-20	-14	14	06
40	N S R	52	-05	-31	-13	-17	23	03	-01	-04	-17	-07	-28	-19
41	N S S	58	02	-31	-20	-07	10	-05	-21	-18	03	06	-04	27
42	N S T	36	-01	-26	-29	12	49	-12	01	-18	-07	01	09	07
43	N S I	57	19	-19	-09	-07	-02	-25	-10	-18	08	-23	-15	00
44	E S U	48	-09	-06	-10	-18	-03	-11	14	11	-14	54	-10	06
45	E S C	62	03	-03	-14	-06	-20	13	-17	-05	-11	-19	16	-01
46	E S R	45	-08	-02	-13	-22	-06	17	03	14	12	04	51	-27
47	E S S	53	-17	-24	-20	-10	-19	13	-04	25	13	10	21	12
48	E S T	38	-01	01	-14	-16	-11	23	18	37	-07	-04	-06	58
49	E S I	17	-13	-08	-10	-20	-28	45	36	-12	-40	-07	-15	09

FACTOR ANALYSIS STUDY : FA- 2 : Rotated Factor Matrix - SYMBOLIC TESTS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12
01	AGE	-25	04	-15	-18	-04	-02	-01	-05	-15	06	05	-75
02	S E 1	01	-19	55	13	13	13	26	-12	41	07	08	-09
03	P S 1	27	-22	63	04	06	-08	10	16	12	-17	07	05
04	P S 2	24	-07	64	00	13	12	05	-16	26	-08	04	04
05	S E 2	07	-36	52	23	10	-03	12	09	35	03	-00	10
06	S P M	07	-23	73	02	05	-24	01	-01	06	-15	02	05
07	R S P	37	05	16	24	03	18	-50	24	08	-10	-01	-09
08	S C O	21	05	69	12	05	35	-07	05	07	-01	-19	-09
09	W A R	10	-26	62	08	00	06	-29	-06	03	05	04	-04
10	L P E	23	02	49	-01	23	40	04	13	08	-13	-03	-07
11	J U D	03	-01	54	-05	05	-19	-50	-03	-06	-01	02	15
12	A N A	24	-07	65	25	10	04	-09	21	08	06	05	09
13	V O C	27	00	70	16	04	18	-10	06	07	05	03	01
14	M A R	91	-09	13	05	07	11	-02	-02	10	-04	03	03
15	O L A	86	-17	24	12	07	04	-02	03	08	-03	03	12
16	S S T	89	-15	20	08	09	03	-09	04	07	01	-02	-00
17	M A T	75	-40	20	05	05	-07	01	06	20	-03	03	05
18	S C I	88	-23	17	04	03	-01	-02	04	11	-01	-01	02
19	G T P	91	-25	22	08	08	-00	-04	04	14	-04	04	06
20	C S U	07	-04	13	82	13	-01	-09	-01	-07	07	-13	03
21	C S C	09	-27	11	59	-01	07	03	04	25	-32	-11	16
22	C S R	06	03	11	83	08	-06	15	09	06	-02	11	-00
23	C S S	18	-42	29	49	08	-01	-05	02	34	03	23	15
24	C S T	20	-20	13	62	09	31	-23	00	14	11	03	01

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12
26	M S U	17	-06	16	22	52	04	06	00	12	-15	-41	05
27	M S C	15	-03	12	02	77	10	-03	03	-04	-09	07	07
28	M S R	00	-02	09	02	14	07	-03	77	16	12	-03	07
29	M S S	06	-05	15	01	42	07	11	06	31	-18	-47	-20
30	M S T	05	-33	08	22	58	-07	-11	38	01	-11	-10	-02
31	M S I	03	-07	02	05	78	-08	-04	-01	11	18	07	-03
32	D S U	-05	-10	06	04	-12	78	02	01	12	-02	03	06
33	D S C	27	-51	25	14	12	-03	-26	04	38	-07	10	-09
34	D S R	27	-42	12	10	09	-03	-12	21	46.	-16	08	-08
35	D S S	38	-20	22	07	08	-03	08	21	38	11	10	-32
36	D S T	15	-21	08	01	01	20	20	39	-07	-37	28	32
37	D S I	27	-44	07	19	-10	-03	-13	41	11	-06	-00	-17
38	N S U	29	-50	15	13	04	09	12	00	15	-13	13	16
39	N S C	22	-67	07	-06	17	22	-17	-03	13	-00	-04	01
40	N S R	19	-48	12	22	04	37	14	03	06	-27	05	-14
41	N S S	24	-57	11	12	18	23	16	-04	17	03	07	08
42	N S T	11	-37	05	-03	26	58	-01	12	-04	09	02	06
43	N S I	34	-64	17	06	00	00	06	16	00	03	-07	-04
44	E S U	18	-15	23	07	19	12	05	03	30	-14	59	-13
45	E S C	30	-41	26	06	10	-01	-13	-15	36	-13	-20	10
46	E S R	14	-11	16	00	-02	15	-18	04	62	00	01	31
47	E S S	11	-23	10	13	17	06	06	09	67	-07	02	08
48	E S T	21	01	17	02	-05	08	03	10	44	-35	-03	-16
49	E S I	-03	-08	06	01	05	-04	-10	-11	11	-81	03	07

TABLE : XVIII - c

FACTOR ANALYSIS STUDY : FA - 3 : Unrotated Factor Matrix - SEMANTIC TESTS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12
01	AGE	-42	13	01	-06	14	-37	27	-04	18	02	-31	14
02	S E 1	44	11	49	06	22	-13	-31	-08	05	15	06	-05
03	P S 1	62	-03	38	-06	-05	-06	-09	-11	-12	-06	-07	09
04	P S 2	55	-02	47	-09	01	-08	-06	-19	11	-10	07	14
05	S E 2	56	08	39	05	22	01	-21	-11	-22	03	05	-14
06	S P M	51	11	51	-02	00	-05	05	12	-25	17	-15	12
07	R S P	53	-01	-18	08	-09	-08	25	11	16	-29	24	-14
08	S C O	59	05	39	13	03	-14	08	-04	33	-09	12	-07
09	W A R	52	02	39	06	-06	00	21	06	-09	-11	15	03
10	L P E	45	-15	41	-01	13	-02	-06	-25	37	-17	08	-07
11	J U D	32	-01	37	05	-18	-06	37	48	-14	15	-12	05
12	A N A	69	05	29	13	-18	-04	-01	09	-01	09	-11	-01
13	V O C	66	08	33	06	-12	-13	05	09	18	-01	00	08
14	M A R	70	-31	-24	-46	11	-07	03	-02	12	10	02	03
15	O L A	78	-26	-17	-37	02	-03	-05	05	04	07	-03	01
16	S S T	77	-27	-22	-38	06	-08	02	00	07	06	-05	00
17	M A T	73	-30	-11	-35	04	-03	-21	-07	-08	00	-13	02
18	S C I	71	-39	-16	-45	06	-06	-06	-03	01	00	-04	01
19	G T P	82	-29	-19	-42	06	-03	-07	-01	01	04	-06	01
20	C M U	55	-12	-21	30	-48	-09	02	-02	06	-13	02	10
21	C M C	44	-12	-19	32	-31	-23	-14	04	01	-06	-19	21
22	C M R	59	-09	-06	26	-34	-06	-21	15	-07	-01	-01	-01
23	C M S	48	-14	-18	31	-27	-14	-15	-34	-05	15	05	-03
24	C M T	40	-05	-27	53	-20	-18	-18	-12	06	02	-12	09
25	C M I	38	-09	-10	41	09	-11	-11	-15	14	36	-14	-15

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11	12
26	M M U	56	-08	-04	11	-16	42	34	-04	08	06	10	05
27	M M C	46	-05	-01	06	-11	47	35	-18	20	11	-14	02
28	M M R	57	03	10	-09	-11	22	08	03	-24	-09	06	-09
29	M M S	19	00	01	-04	-12	-03	20	-21	-08	64	47	15
30	M M T	22	-09	-02	25	19	67	-07	-12	02	13	-14	05
31	M M I	22	-15	03	13	19	61	-22	14	11	-04	-16	02
32	D M U	30	-13	-17	46	51	-05	07	-06	-13	-02	07	-12
33	D M C	44	-14	-17	16	32	-12	-09	22	-19	-09	30	-13
34	D M R	50	-14	-10	27	46	-08	10	13	-13	05	-15	09
35	D M S	47	-06	-11	04	36	-01	-08	17	-09	-09	10	42
36	D M T	51	-07	-20	23	29	-20	25	14	11	04	-04	-08
37	D M I	39	-07	-20	27	51	-08	23	-05	00	-03	07	10
38	N M U	73	37	-15	07	-11	-05	-03	17	12	-13	09	02
39	N M C	38	64	-11	-14	13	04	09	03	-11	06	03	13
40	N M R	55	66	-21	-07	-02	-03	-08	07	-01	09	-02	06
41	N M S	41	77	-19	-17	00	-01	-02	-04	00	06	-07	-03
42	N M T	36	68	-09	-08	08	06	-07	-07	06	03	-05	-02
43	N M I	58	49	-09	-02	05	15	-09	-01	-05	-12	13	-09
44*	N M U - 2	39	79	-21	-05	03	-02	-06	-05	08	00	-08	-10
45	E M U	35	03	-10	02	-11	10	16	-36	-32	-28	-07	43
46	E M C	37	-14	-18	-03	-32	-07	13	07	-30	16	-08	-35
47	E M R	61	-12	10	09	-09	22	-17	20	-17	-09	-08	-18
48	E M S	53	-02	-01	-01	-02	08	13	19	32	06	-17	-12
49	E M T	16	07	15	-03	18	-20	32	-39	-27	-13	-35	-29
50	E M I	48	-03	-14	-04	-16	07	17	-23	-07	-24	17	-20

FACTOR ANALYSIS STUDY : FA – 3 : Rotated Factor Matrix – SEMANTIC TESTS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-19	-03	-14	-19	-01	-31	-11	00	-07	-13	-57
02	S E 1	07	16	71	04	14	02	-25	02	08	08	09
03	P S 1	29	11	59	17	01	06	-02	20	-23	-01	15
04	P S 2	24	07	71	06	00	03	11	04	-13	02	05
05	S E 2	15	19	60	05	22	12	-19	10	-16	06	28
06	S P M	12	17	52	04	05	06	18	53	-15	07	09
07	R S P	25	16	13	23	25	-04	58	08	02	-04	07
08	S C O	12	14	70	16	17	03	29	10	07	01	-11
09	W A R	09	08	50	05	11	04	27	35	-13	07	16
10	L P E	22	-07	70	02	07	13	19	-17	02	-04	-10
11	J U D	03	-01	22	04	04	00	11	80	06	02	-04
12	A N A	20	20	50	36	05	15	04	38	-03	04	05
13	V O C	21	21	59	26	06	03	20	30	06	00	-05
14	M A R	89	08	13	08	16	05	12	02	00	13	-03
15	O L A	84	13	19	19	13	10	09	12	00	06	08
16	S S T	87	13	16	17	17	07	12	09	-04	06	00
17	M A T	81	07	24	22	09	11	-08	04	-13	-03	16
18	S C I	90	00	18	12	11	05	07	04	-08	02	08
19	G T P	92	13	20	17	14	10	06	08	-07	05	09
20	C M U	18	06	09	72	02	04	37	11	-06	01	09
21	C M C	16	03	07	70	10	-03	04	10	-02	-12	00
22	C M R	21	10	20	63	05	08	08	22	07	-04	25
23	C M S	16	04	16	66	10	06	02	-13	-16	29	09
24	C M T	00	09	06	76	24	07	02	-09	-02	00	-03
25	C M I	06	05	18	48	34	20	-19	-04	06	23	-20

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
26	M M U	21	11	11	17	09	50	45	22	-10	23	06
27	M M C	20	11	11	12	00	61	33	15	-18	18	-19
28	M M R	28	20	23	09	03	21	18	28	-21	04	32
29	M M S	09	06	07	03	02	-03	04	08	06	86	05
30	M M T	-01	01	03	03	16	78	-07	-07	-05	05	10
31	M M I	10	-03	08	-01	10	69	-06	-01	15	-22	17
32	D M U	-02	-02	06	13	76	13	-01	-08	-12	04	07
33	D M C	24	05	09	11	58	-08	08	-04	11	00	37
34	D M R	22	05	12	14	69	15	-09	19	-08	-06	-02
35	D M S	30	14	14	02	48	07	03	05	06	-10	22
36	D M T	25	13	09	21	59	03	17	16	04	02	-19
37	D M I	13	09	07	03	72	09	13	-04	-11	06	-08
38	N M U	25	60	24	35	17	04	30	15	11	-08	12
39	N M C	08	75	05	-09	11	01	03	13	-08	08	05
40	N M R	16	84	09	18	07	02	01	11	04	04	05
41	N M S	11	90	04	04	-03	-01	00	04	-06	03	-04
42	N M T	02	78	14	01	02	08	-01	-03	-03	00	-03
43	N M I	15	67	21]	10	13	14	16	01	-05	-01	26
44	N M U - 2	02	90	07	11	03	01	03	-04	-02	-04	-07
45	E M U	13	14	04	18	04	09	19	-01	-59	-02	18
46	E M C	30	03	-13	35	-02	-02	03	35	-18	18	13
47	E M R	28	08	26	29	10	30	02	29	-02	-15	35
48	E M S	34	17	21	18	11	26	20	23	16	-07	-22
49	E M T	04	07	17	-05	15	-09	-04	09	-67	-04	-24
50	E M I	27	15	11	20	05	07	41	-04	-31	09	18

TABLE : XVIII - d

FACTOR ANALYSIS STUDY : FA - 4 : Unrotated Factor Matrix - C O G N I T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-44	00	-12	-08	-16	-00	21	-34	-32	11	52
02	S E 1	47	-35	-38	-01	-04	-35	-18	-07	-05	-05	-07
03	P S 1	65	-13	-32	-10	02	03	-23	02	14	-03	17
04	P S 2	60	-15	-40	-09	01	-10	02	10	12	-08	16
05	S E 2	59	-30	-27	15	13	-21	-22	-05	-09	-10	-03
06	S P M	53	-26	-41	-06	26	16	-06	-17	02	22	05
07	R S P	50	01	22	-08	-18	17	21	05	-32	-31	05
08	S C O	58	-28	-27	-27	-25	-10	24	16	-13	02	-01
09	W A R	54	-24	-27	-06	17	10	31	-09	04	-14	-04
10	L P E	49	-10	-31	-10	-10	-24	26	46	-08	-15	17
11	J U D	33	-23	-24	-18	09	54	20	-15	09	25	-18
12	A N A	69	-29	-07	-19	-10	10	-02	-12	05	18	02
13	V O C	65	-25	-20	-24	-20	04	17	-05	02	06	-08
14	M A R	71	55	-04	12	-21	02	07	01	-03	06	-03
15	O L A	79	42	00	08	-17	05	01	-02	05	07	-08
16	S S T	77	49	-02	05	-22	04	03	-05	-04	08	01
17	M A T	77	42	-04	11	-01	-11	-11	-14	02	-02	01
18	S C I	75	53	-06	12	-15	04	-02	02	-00	02	00
19	G T P	83	50	-04	11	-13	02	-02	-04	01	04	-02
20	C F U	28	05	15	18	42	-16	49	38	06	15	-13

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	C F C	32	21	-14	28	37	-04	04	-02	37	04	38
22	C F R	58	03	-04	11	29	20	-25	-07	-28	-16	-04
23	C F S	31	16	20	12	52	07	06	07	-28	15	26
24	C F T	31	-03	01	-06	29	50	-28	36	-19	-05	-00
25	C F I	05	19	-10	-01	42	-33	32	-41	-16	04	-35
26	C S U	37	-43	37	37	-28	18	07	02	04	19	-06
27	C S C	46	-29	23	35	-02	-24	-18	07	09	14	05
28	C S R	35	-41	30	52	-13	-03	00	02	05	18	01
29	C S S	65	-26	05	37	08	-08	-17	-18	-06	-23	-10
30	C S T	54	-28	30	27	-25	-02	13	-02	-15	-07	-02
31	C S I	31	-26	26	34	13	12	25	-21	-04	-24	19
32	C M U	53	-00	40	-48	-02	15	-06	-07	06	-19	-01
33	C M C	46	-05	44	-33	03	-02	10	-12	30	02	14
34	C M R	62	-11	34	-22	20	14	-02	05	09	-00	-04
35	C M S	49	03	35	-35	22	-28	-02	-01	10	-22	-06
36	C M T	37	-08	48	-47	00	-23	-10	-12	01	07	15
37	C M I	36	-07	20	-30	09	-29	-19	11	-36	46	-01

FACTOR ANALYSIS STUDY : FA - 4 : Rotated Factor Matrix - C O G N I T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-22	23	-15	28	-24	10	23	-33	-27	10
02	S E 1	07	-77	14	-01	-10	-04	02	-08	04	12
03	P S 1	31	-62	04	-17	-07	20	-16	14	14	-01
04	P S 2	26	-68	01	-09	13	17	-02	07	01	-06
05	S E 2	15	-70	27	-04	-05	-04	24	-10	09	04
06	S P M	13	-55	06	-02	-02	51	-25	-14	19	08
07	R S P	31	-10	21	-27	05	04	-21	01	-57	-12
08	S C O	18	-62	07	-15	16	26	13	09	-39	15
09	W A R	13	-50	10	-14	20	37	-11	-18	-11	-25
10	L P E	21	-60	-03	-02	44	-04	06	16	-31	02
11	J U D	05	-16	04	-05	01	80	-14	02	-01	-06
12	A N A	24	-48	26	-32	-07	43	-04	05	-04	14
13	V O C	25	-54	15	-26	02	41	10	05	-22	05
14	M A R	92	-11	07	-08	10	05	-03	00	-08	03
15	O L A	86	-18	14	-20	07	12	-07	04	-01	03
16	S S T	90	-15	09	-16	03	11	-05	-01	-09	07
17	M A T	80	-28	10	-21	-01	-04	-14	-13	11	01
18	S C I	91	-16	06	-11	07	04	-12	04	-02	01
19	G T P	93	-21	11	-17	07	07	-12	-01	00	02
20	C F U	11	-01	16	-09	82	02	-09	-16	06	03

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	C F C	32	-14	04	00	29	05	-11	-14	49	-22
22	C F R	33	-29	14	-11	-08	05	-63	-12	-02	-03
23	C F S	19	09	10	-10	33	05	-52	-29	06	18
24	C F T	08	-08	-03	-07	09	20	-71	33	-04	03
25	C F I	08	-05	-14	-04	15	-01	02	-75	07	01
26	C S U	05	-01	81	-08	03	20	02	20	-08	04
27	C S C	13	-28	61	-14	09	-15	-06	07	20	17
28	C S R	05	-10	82	01	09	02	-01	07	08	07
29	C S S	25	-47	56	-14	-09	-10	-30	-14	04	-16
30	C S T	22	-19	66	-18	04	00	-03	01	-29	-01
31	C S I	02	-05	53	-14	09	07	-18	-26	-12	-35
32	C M U	22	-07	03	-76	-09	14	-17	11	-19	-03
33	C M C	16	-01	17	-73	08	17	09	01	05	-01
34	C M R	20	-16	22	-60	15	21	-29	07	00	04
35	C M S	16	-21	00	-72	16	-18	-11	-10	-01	02
36	C M T	06	-07	08	-74	-07	-03	03	-06	-07	31
37	C M I	10	-17	07	-30	07	-01	-15	-07	-07	76

TABLE : XVIII - e

FACTOR ANALYSIS STUDY : FA - 5 : Unrotated Factor Matrix - M E M O R Y

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-42	03	-02	-12	-28	-36	21	03	-16	46	-13
02	S E 1	49	09	-33	-31	-31	23	-12	-06	22	12	-15
03	P S 1	66	-02	-13	-27	-05	16	08	-09	04	09	-12
04	P S 2	62	-04	-18	-33	-12	01	-28	02	01	15	14
05	S E 2	60	10	-28	-18	-15	29	05	-07	11	-06	-24
06	S P M	55	15	-25	-37	03	07	-01	-32	-15	06	-04
07	R-S P	47	01	11	02	21	-37	08	41	-01	-22	-34
08	S C O	61	-07	-26	-34	-02	-14	-04	31	10	-04	09
09	W A R	54	05	-19	-32	22	-01	07	04	-14	18	05
10	L P E	53	-12	-23	-13	-18	00	-08	49	14	17	15
11	J U D	35	-02	-18	-34	32	-22	11	-27	-46	-13	12
12	A N A	68	04	-21	-23	13	-04	08	-06	-01	-12	-16
13	V O C	65	-03	-16	-37	09	-12	-02	11	-01	-09	12
14	M A R	73	-16	53	12	-10	-06	00	00	03	05	12
15	O L A	80	-10	44	09	-03	-02	-04	-03	-02	-01	05
16	S S T	79	-10	48	12	-09	-08	01	-02	-05	02	-02
17	M A T	76	-13	38	09	-17	20	06	-08	-06	07	-08
18	S C I	75	-17	50	10	-13	07	05	00	-07	05	02
19	G T P	85	-10	47	12	-10	04	00	-04	-05	02	01
20	M F U	08	87	05	05	-06	-02	-07	06	01	07	-02

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F C	21	77	08	11	03	-06	-12	05	00	18	-20
22	M F R	13	56	02	05	14	23	13	18	-23	03	43
23	M F S	10	84	09	04	04	-04	-02	05	-08	-13	01
24	M F T	18	85	07	03	-06	01	03	-10	07	01	06
25	M F I	16	87	02	14	-05	-09	-08	-04	07	-04	00
26	M S U	43	-05	-31	31	-23	-16	-21	-08	10	-46	-01
27	M S C	39	-07	-35	43	-10	-32	-14	04	-09	15	-01
28	M S R	23	02	-21	19	07	17	76	22	06	-01	-01
29	M S S	30	00	-31	13	-55	-16	10	00	-04	-21	34
30	M S T	42	06	-36	46	-09	-04	24	-01	-09	05	-25
31	M S I	24	-13	-40	43	-25	-14	05	-20	-24	19	08
32	M M U	54	-10	-07	19	57	-12	-05	09	15	12	11
33	M M C	47	-09	-12	27	43	-17	-24	-16	08	18	-06
34	M M R	58	07	-05	01	16	09	14	-13	-10	-22	-08
35	M M S	21	08	01	00	08	-32	32	-38	63	06	21
36	M M T	24	-09	-29	46	32	37	-07	00	14	12	12
37	M M I	29	-12	-32	53	05	25	-16	05	-14	-02	-01

FACTOR ANALYSIS STUDY : FA – 5 : Rotated Factor Matrix – M E M O R Y

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-24	-03	16	10	-03	-32	-03	05	06	70
02	S E 1	07	10	-77	13	-18	-04	-04	09	09	-09
03	P S 1	33	02	-63	05	-06	08	12	-20	08	-05
04	P S 2	25	01	-70	10	07	08	-23	-10	-04	01
05	S E 2	19	12	-65	14	-14	03	17	-08	04	-24
06	S P M	14	15	-59	08	-17	04	-05	-48	06	-03
07	R S P	32	09	-09	04	69	09	11	-13	01	-09
08	S C O	15	-02	-68	08	44	03	03	-09	02	-05
09	W A R	16	07	-53	-02	13	21	10	-38	-03	14
10	L P E	19	-05	-64	17	36	10	09	26	-12	08
11	J U D	04	-04	-21	04	12	02	-03	-81	-03	01
12	A N A	24	08	-53	10	17	12	11	-38	12	-18
13	V O C	24	01	-60	01	33	05	00	-30	04	-09
14	M A R	91	-01	-14	05	13	08	-02	00	10	-02
15	O L A	86	05	-21	06	12	13	-04	-10	06	-11
16	S S T	90	05	-16	11	14	07	-02	-09	07	-04
17	M A T	85	01	-27	10	-11	06	10	-04	-02	-08
18	S C I	92	-02	-18	05	04	05	05	-04	-01	-03
19	G T P	95	06	-22	09	06	10	01	-08	03	-09
20	M F U	-03	88	-04	00	-01	-03	-03	05	-01	05

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F C	08	81	-06	04	03	13	-08	02	00	11
22	M F R	03	57	-03	-09	-02	09	28	-11	-28	02
23	M F S	-01	85	05	-04	07	-06	02	-10	-05	-09
24	M F T	05	86	-07	00	-09	-05	03	-04	13	-04
25	M F I	00	89	00	10	02	00	-05	01	10	-08
26	M S U	12	01	-16	58	18	-01	-13	00	10	-55
27	M S C	11	02	-11	69	21	27	-08	00	00	07
28	M S R	05	02	-09	15	08	06	86	-02	10	02
29	M S S	08	03	-24	59	07	-36	08	05	05	-15
30	M S T	13	12	-11	63	01	21	35	-06	03	-04
31	M S I	06	-08	-05	75	-15	11	05	-09	-03	13
32	M M U	25	-01	-16	04	32	69	07	-17	15	-05
33	M M C	21	00	-11	22	12	66	-18	-20	16	-04
34	M M R	33	12	-25	10	04	14	20	-36	04	-29
35	M M S	08	08	-08	03	01	09	10	-02	88	-01
36	M M T	01	-04	-08	21	-16	66	23	13	-08	-22
37	M M I	08	-05	-05	47	-09	42	11	07	-29	-26

TABLE : XVIII - f

FACTOR ANALYSIS STUDY : FA - 6 : Unrotated Factor Matrix - DIVERGENT THINKING

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-37	04	-05	21	-24	-36	28	11	43	21	22
02	S E 1	48	-32	-36	34	14	-04	23	-01	-19	-12	-04
03	P S 1	63	-36	-12	05	01	04	-02	13	-15	19	-07
04	P S 2	57	-42	-19	-01	13	-01	10	-11	01	-05	05
05	S E 2	59	-23	-28	27	-02	13	11	02	-17	-06	12
06	S P M	52	-41	-30	-05	-29	19	01	-04	-14	10	09
07	R S P	49	08	06	00	-11	-19	-36	00	39	-26	-29
08	S C O	58	-26	-37	-12	22	-24	-05	-14	24	-03	-07
09	W A R	52	-24	-32	-16	-15	-06	00	00	08	-24	19
10	L P E	50	-26	-18	-03	34	-05	07	-06	31	-15	-02
11	J U D	31	-30	-23	-31	-44	-05	-29	-07	-07	13	-14
12	A N A	64	-29	-23	-12	-04	-05	-20	13	-07	05	00
13	V O C	63	-32	-25	-17	04	-17	-13	-02	11	19	13
14	M A R	74	04	51	-15	11	-14	05	-16	-01	-01	04
15	O L A	80	-01	42	-16	05	00	02	-08	-03	04	02
16	S S T	80	04	45	-15	02	-13	05	-08	-01	-02	-03
17	M A T	79	-03	40	01	02	05	18	13	-12	06	03
18	S C I	77	00	51	-09	04	-08	08	-01	-02	-01	06
19	G T P	85	00	48	-12	03	-02	08	-04	-04	01	03
20	D F U	29	48	-33	-34	07	41	14	-04	04	06	01

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Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	D F C	35	37	-26	-20	-20	-27	41	11	03	01	-03
22	D F R	36	28	-29	-11	31	-19	08	24	-20	38	-17
23	D F S	35	36	-21	-38	-11	16	21	32	-01	-18	-18
24	D F T	33	10	-10	-32	-26	51	17	-19	32	-03	09
25	D F I	20	31	-04	-23	02	-14	-36	57	-13	-12	36
26	D S U	18	24	-33	-04	63	-07	05	02	15	-06	13
27	D S C	66	-02	-01	33	-16	04	01	22	-01	-16	-01
28	D S R	60	12	02	40	-12	23	01	15	01	-27	-15
29	D S S	55	-03	08	28	-09	-02	32	21	13	-02	-18
30	D S T	28	-05	08	10	40	53	-28	15	15	20	-15
31	D S I	48	16	09	27	-11	18	-17	27	28	19	16
32	D M U	36	55	-31	18	03	-06	-07	-18	-14	-19	10
33	D M C	48	34	-06	05	03	00	-14	-32	-21	-21	21
34	D M R	56	40	-22	11	-18	-02	05	-20	-06	29	-08
35	D M S	51	20	03	29	-08	11	-11	-14	13	23	33
36	D M T	53	33	-07	12	-16	-25	-28	04	01	01	-19
37	D M I	43	45	-17	20	-01	-08	-13	-34	-01	15	-15

FACTOR ANALYSIS STUDY : FA - 6 : Rotated Factor Matrix - DIVERGENT THINKING

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-20	-06	-25	-02	-03	-12	16	-11	06	73
02	S E 1	50	11	04	54	25	-13	10	-15	-17	-10
03	P S 1	62	04	30	27	00	-04	-18	06	-19	-02
04	P S 2	62	-01	26	22	22	02	-01	-16	01	-08
05	S E 2	50	18	12	52	06	03	-05	-08	-12	-13
06	S P M	71	05	09	23	-23	18	-05	-08	-08	-08
07	R S P	22	26	29	07	10	01	-08	23	61	09
08	S C O	67	16	17	01	45	02	02	-01	17	07
09	W A R	59	06	11	20	09	20	16	08	22	-05
10	L P E	44	-02	22	16	51	06	-08	-10	20	02
11	J U D	64	09	03	-17	-39	11	04	12	12	-02
12	A N A	69	11	23	14	02	03	-10	24	02	-06
13	V O C	74	12	26	-03	16	01	-10	09	03	10
14	M A R	14	16	91	02	10	02	00	-01	08	-07
15	O L A	25	15	86	09	02	12	-10	04	03	-09
16	S S T	20	18	89	10	04	07	01	06	10	-03
17	M A T	20	08	80	34	-01	09	-10	08	-12	-01
18	S C I	16	09	90	16	03	04	-05	06	06	-02
[illegible]	G T P	22	14	93	17	02	11	-06	05	03	-06
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	73	-11	10	-16	-12

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	D F C	11	29	15	12	14	39	43	22	-14	33
22	D F R	20	32	12	-03	35	06	-04	37	-50	13
23	D F S	06	06	12	18	10	63	16	42	-05	-02
24	D F T	17	06	13	03	-09	75	-14	-20	18	00
25	D F I	00	08	08	02	03	05	-04	82	05	-08
26	D S U	02	18	-05	-01	75	09	-08	12	-07	-06
27	D S C	27	22	31	62	-03	01	-08	16	11	02
28	D S R	09	27	26	68	-01	11	-15	08	17	-10
29	D S S	17	08	38	53	07	08	-03	00	-04	29
30	D S T	06	-03	14	10	20	10	-77	03	-05	-18
31	D S I	07	25	25	33	-06	10	-48	19	12	25
32	D M U	-03	69	-01	22	21	14	14	13	04	-18
33	D M C	07	56	25	11	09	10	10	02	10	-35
34	D M R	20	70	21	12	-02	24	-02	00	-17	14
[illegible]	D M S	12	50	28	21	-04	06	-32	-09	04	13
36	D M T	17	57	25	13	-02	-04	-01	34	17	09
37	D M I	07	75	15	03	11	06	-06	-05	01	01

TABLE : XVIII - g

FACTOR ANALYSIS STUDY : FA - 7 : Unrotated Factor Matrix - CONVERGENT THINKING

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-38	10	01	13	-08	15	-41	30	49	40	02
02	S E 1	49	04	45	06	46	-07	-06	-11	23	-11	-01
03	P S 1	65	-08	30	-10	08	-13	-16	-24	02	07	19
04	P S 2	59	-08	38	-13	08	-01	-27	-06	-11	-01	-12
05	S E 2	60	02	34	11	25	-19	01	-12	02	-14	-04
06	S P M	54	07	45	-11	-15	-33	-13	05	10	-10	03
07	R S P	47	03	-07	-17	-17	43	40	-12	01	25	-04
08	S C O	58	04	42	-18	05	33	-08	04	-09	10	-11
09	W A R	53	-00	39	-04	-21	-03	-00	03	-03	22	01
10	L P E	48	-20	36	01	14	46	-14	05	-08	-12	-18
11	J U D	29	00	40	-32	-43	-18	16	27	05	03	20
12	A N A	65	06	34	-21	-03	-00	09	02	02	02	14
13	V O C	63	07	35	-30	03	14	01	21	-07	03	-01
14	M A R	70	-34	-41	-26	03	12	-09	09	08	-08	-02
15	O L A	78	-28	-31	-23	-03	02	01	02	05	-11	-03
16	S S T	76	-29	-37	-28	-03	10	-07	04	08	-02	06
17	M A T	77	-35	-27	-05	04	-12	-08	-07	10	-05	-01
18	S C I	73	-43	-34	-19	-05	03	-11	-01	09	-05	-02
19	G T P	83	-33	-36	-20	-02	-00	-07	-00	-07	-07	01
20	N F U	33	02	-03	43	-03	33	-06	-36	-02	-18	48

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	N F C	21	-13	22	27	-06	11	56	04	53	-21	-19
22	N F R	59	-07	05	20	-40	-16	09	04	-15	-12	16
23	N F S	34	11	11	48	-46	13	-17	-17	10	-14	-16
24	N F T	42	01	-01	47	-43	12	-29	03	-04	-08	-16
25	N F I	56	-01	-06	20	-14	-12	09	-33	-05	41	-04
26	N S U	57	-07	-11	28	05	-24	03	08	-12	01	-34
27	N S C	50	-19	-07	37	14	-15	11	32	02	-04	32
28	N S R	48	-16	-01	41	29	07	06	01	18	24	14
29	N S S	53	-19	-04	39	17	-18	01	10	-12	11	-19
30	N S T	35	-14	00	44	17	29	10	44	-35	00	09
31	N S I	55	-22	-12	23	02	-28	04	-00	-01	31	-00
32	N M U - I	69	39	-08	-17	02	12	19	-08	-09	21	02
33	N M C	42	60	-15	04	-07	-06	04	23	04	-16	02
34	N M R	55	66	-21	-12	-00	-08	01	02	-06	-00	-03
35	N M S	44	74	-24	-02	04	-01	-09	08	11	-07	-02
36	N M T	39	66	-12	05	12	02	-19	01	05	01	14
37	N M I	60	48	-09	04	07	-08	20	-10	-01	-06	-14
38	N M U - II	41	78	-21	03	08	09	-03	-01	03	00	-03

FACTOR ANALYSIS STUDY : FA - 7 : Rotated Factor Matrix - CONVERGENT THINKING

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-22	-05	-16	-09	-04	-03	-02	-01	88	-06
02	S E 1	04	15	74	22	08	-04	27	-18	-01	-14
03	P S 1	28	08	66	22	-10	-18	-05	04	-09	10
04	P S 2	24	06	70	11	-11	05	-16	09	-05	-01
05	S E 2	12	18	61	33	-07	-05	15	-02	-21	-10
06	S P M	13	15	59	15	-16	-17	05	42	-04	-16
07	R S P	31	18	10	-02	-04	13	19	07	-08	70
08	S C O	17	15	68	-04	-07	27	-03	11	03	30
09	W A R	10	07	50	20	-18	00	-02	36	03	25
10	L P E	22	-07	60	-04	-19	44	07	-11	00	12
11	J U D	08	01	29	-06	-02	-03	11	74	-02	09
12	A N A	25	22	58	10	-02	03	11	29	-11	18
13	V O C	26	24	61	01	06	25	01	31	-03	17
14	M A R	91	10	13	11	00	14	00	00	-01	06
15	O L A	85	15	20	17	-05	06	06	08	-14	09
16	S S T	89	15	18	13	-03	07	-01	04	-02	14
17	M A T	78	07	24	35	-12	-06	04	-02	-08	01
18	S C I	90	00	17	19	-10	02	-01	02	-03	07
19	G T P	92	14	21	23	-09	02	01	04	-09	07
20	N F U	09	11	15	08	-54	09	14	-41	-15	14

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	N F C	02	-05	09	14	-12	03	88	08	-03	11
22	N F R	27	12	15	32	-45	05	05	36	-27	05
23	N F S	02	14	12	10	-79	-03	13	04	03	04
24	N F T	15	13	08	21	-75	15	-05	09	09	-01
25	N F I	21	15	18	49	-26	-26	-09	01	-07	45
26	N S U	28	19	14	55	-17	07	00	06	15	-05
27	N S C	27	08	09	59	-09	27	21	07	-02	-14
28	N S R	18	05	23	57	-09	12	23	-25	18	16
29	N S S	22	05	18	66	-14	15	00	-05	-07	-03
30	N S T	05	04	07	43	-15	74	02	-04	-05	05
31	N S I	33	03	13	65	-09	-09	-04	07	01	14
32	N M U - I	27	61	28	15	02	03	-02	08	-12	45
33	N M C	08	76	02	07	-10	10	09	19	-03	-08
34	N M R	16	85	12	08	-02	-05	-09	11	-11	09
35	N M S	10	90	06	01	-07	-03	00	00	07	-03
36	N M T	00	77	17	06	-09	-02	-09	-10	11	-02
37	N M I	14	67	20	21	-06	-06	13	02	-23	14
38	N M U - II	01	90	07	01	-08	01	-02	-09	03	10

TABLE : XVIII - h

FACTOR ANALYSIS STUDY : FA - 8 : Unrotated Factor Matrix - E V A L U A T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-41	-09	05	-12	45	-05	24	16	39	06	16
02	S E 1	50	-42	-20	28	13	-17	-03	-21	05	25	10
03	P S 1	67	-20	-17	02	06	08	-28	00	-07	-02	10
04	P S 2	62	-26	-25	13	14	-10	-09	01	06	-25	-02
05	S E 2	60	-30	-22	26	-03	02	-18	-10	-01	25	-01
06	S P M	56	-39	-19	-11	03	29	-06	-05	-01	-06	30
07	R S P	48	09	11	-28	-17	-16	19	24	-06	04	-28
08	S C O	59	-30	-26	-22	15	-29	08	-01	-11	-12	-20
09	W A R	54	-28	-21	-22	04	04	-07	06	14	-17	-09
10	L P E	52	-21	-15	01	28	-34	02	-04	-16	-01	-29
11	J U D	35	-27	-17	-41	-16	38	16	-13	05	-25	18
12	A N A	67	-21	-24	-22	-18	01	07	05	-08	18	16
13	V O C	64	-20	-38	-19	-03	-10	17	05	03	-02	-03
14	M A R	73	56	-01	03	16	00	11	-05	-02	-09	05
15	O L A	79	46	-05	-01	07	05	08	-11	-03	-03	01
16	S S T	78	49	04	-09	10	-01	06	-08	03	-03	05
17	M A T	78	39	04	12	08	03	-11	-12	08	02	04
18	S C I	76	51	04	01	15	01	-02	-11	05	-05	01
19	G T P	84	50	02	03	10	03	01	-09	01	-04	03
20	E F U	38	-09	57	-08	12	-01	-07	-08	-23	14	28

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	E F C	46	-23	46	05	-18	-20	00	-04	-20	10	-09
22	E F R	26	-25	48	-09	28	-11	-01	-21	35	10	-76
23	E F S	46	-32	51	-12	03	08	07	-02	04	-08	-12
24	E F T	36	-14	46	-23	07	-20	-29	06	-04	-13	33
25	E F I	37	-35	35	-09	-17	13	26	-17	23	00	-16
26	E S U	45	-11	04	20	05	04	07	26	39	26	12
27	E S C	59	-02	-01	26	06	16	-23	-09	17	-14	-17
28	E S R	45	-11	07	35	-43	-07	-02	-04	27	-18	-11
29	E S S	45	-11	00	59	-16	00	16	12	-11	15	12
30	E S T	39	-10	08	35	18	15	42	32	-18	-21	-02
31	E S I	18	-21	30	22	07	49	07	02	-27	-20	-19
32	E M U	35	05	11	04	-16	03	-33	60	16	-16	08
33	E M C	33	25	-08	-24	-21	40	00	06	13	44	-28
34	E M R	61	-04	05	-16	-29	05	-13	-13	-19	20	01
35	E M S	53	02	03	-05	-14	-17	51	17	-05	12	25
36	E M T	18	-13	-01	-12	55	26	-18	38	-19	28	-16
37	E M I	45	16	08	-15	-28	-23	-20	36	03	-04	-10

FACTOR ANALYSIS STUDY : FA - 8 : Rotated Factor Matrix - E V A L U A T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-25	15	-02	-13	18	-04	02	-11	70	07
02	S E I	08	-46	17	64	01	-09	00	-17	-01	08
03	P S 1	30	-57	14	28	12	02	-11	18	-20	-06
04	P S 2	27	-62	05	29	-05	-25	-03	15	02	-11
05	S E 2	17	-46	10	61	04	09	-06	02	-18	00
06	S P M	11	-68	13	15	05	17	-05	03	-06	-22
07	R S P	28	-19	21	-06	00	10	49	25	-08	05
08	S C O	19	-69	14	09	08	-25	28	00	-03	10
09	W A R	16	-66	10	04	-02	04	03	18	07	-03
10	L P E	24	-46	17	25	18	-36	19	-06	-04	09
11	J U D	03	-63	05	-27	-19	31	05	-06	-02	-24
12	A N A	20	-61	10	20	04	24	33	08	-20	05
13	V O C	25	-69	-04	16	-02	03	33	05	00	05
14	M A R	91	-11	03	04	02	-02	17	06	-03	-08
15	O L A	87	-22	05	08	-01	08	17	04	-10	-06
16	S S T	89	-18	15	02	00	07	17	09	-04	01
17	M A T	82	-17	16	24	-03	07	-02	13	-08	-02
18	S C I	91	-15	13	08	00	03	05	09	-04	-01
19	G T P	94	-19	12	12	-01	06	11	10	-08	-05
20	E F U	19	02	68	05	18	00	07	-01	-18	-12

.... 2/-

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	E F C	08	-08	60	24	-08	-06	24	10	-29	-07
22	E F R	10	-10	67	11	-04	00	-09	-08	36	08
23	E F S	09	-24	66	03	-06	05	10	09	05	-27
24	E F T	12	-16	61	-11	07	-16	-02	30	-09	06
25	E F I	01	-26	50	10	-32	24	15	-07	13	-21
26	E S U	19	-16	14	49	01	22	13	27	32	-05
27	E S C	43	-31	14	32	-12	01	-26	18	00	-19
28	E S R	17	-17	13	38	-56	01	01	28	-08	-11
29	E S S	17	-03	01	66	-10	-04	22	09	-17	-31
30	E S T	19	-11	01	24	08	-20	33	09	12	-63
31	E S I	01	-05	23	04	06	04	-11	-03	-13	-70
32	E M U	14	-10	06	08	04	04	00	79	00	-10
33	E M C	31	-08	-04	05	11	71	09	08	-07	06
34	E M R	29	-33	30	15	-02	27	13	06	-44	06
35	E M S	29	-19	12	18	-09	07	67	03	01	-09
36	E M T	04	-18	09	09	78	09	-05	12	12	-16
37	E M I	27	-13	14	01	-04	02	24	57	-18	17

TABLE : XVIII - 1

FACTOR ANALYSIS STUDY : FA - 9 : Unrotated Factor Matrix - UNITS

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-42	-05	-08	23	-14	16	-09	-23	08	33	46
02	S E 1	48	-45	-09	03	-43	-01	-05	-16	-15	02	-11
03	P S 1	65	-20	-27	10	-09	-02	13	-17	09	01	-12
04	P S 2	61	-27	-27	-02	-17	13	00	-03	09	-07	-05
05	S E 2	58	-34	-05	-05	-31	-16	08	-12	-18	-17	-01
06	S P M	54	-38	-30	06	-09	-21	28	19	-11	11	03
07	R S P	50	04	17	07	38	-04	-23	-13	29	11	08
08	S C O	62	-39	-07	-06	06	27	-30	02	04	02	00
09	W A R	55	-33	-15	-09	08	08	10	18	10	00	33
10	L P E	52	-20	-13	-21	-24	28	-25	08	32	-05	-06
11	J U D	32	-26	-40	03	31	-20	06	38	-06	26	19
12	A N A	68	-31	-14	02	16	-14	-04	-05	-08	09	-04
13	V O C	67	-32	-20	05	19	13	-14	-02	-04	-08	06
14	M A R	75	52	-02	07	-09	09	-14	07	-03	03	08
15	O L A	81	42	-03	07	-01	01	-07	07	-12	-00	-00
16	S S T	79	47	-02	09	-03	-01	-13	01	-02	12	05
17	M A T	77	41	-07	07	-18	-01	09	-06	-12	-05	01
18	S C I	76	52	-09	05	-13	03	-06	03	-03	02	08
19	G T P	85	48	-03	09	-10	00	-04	05	-08	01	02
20	C F U	26	05	27	-24	-17	-11	13	52	38	-28	22

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F U	07	-26	50	62	-17	-10	02	23	-05	05	00
22	D F U	23	-06	37	-40	12	16	27	22	-34	25	-18
23	N F U	31	-07	45	-16	-26	-26	-07	-17	32	-02	05
24	E F U	33	08	14	-02	-18	-18	13	11	21	66	-22
25	C S U	30	-15	18	-26	22	-47	-34	-09	-20	-08	30
26	M S U	37	-08	10	-27	-12	-38	-30	-03	08	-02	-39
27	D S U	17	-21	45	-22	-11	59	-11	07	-10	14	-01
28	N S U	53	08	14	-03	-10	04	33	-08	-27	-28	09
29	E S U	45	-11	10	02	-20	11	32	-30	17	04	19
30	C M U	50	05	06	-06	56	08	09	-21	06	03	-17
31	M M U	53	01	07	-14	38	19	14	15	14	-20	-12
32	D M U	27	-09	44	-48	01	-06	-01	-17	-24	14	27
33	N M U - I	65	-17	27	38	31	04	-05	-12	-05	-02	-03
34	N M U - II	29	-27	52	61	07	-03	-02	10	00	-12	-05
35	E M U	35	07	08	-08	22	-10	51	-29	30	01	03

FACTOR ANALYSIS STUDY : FA - 9 : Rotated Factor Matrix - U N I T S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-26	08	-25	01	-14	-14	-10	-20	-39	29
02	S E 1	10	-73	18	16	-21	09	10	00	-12	02
03	P S 1	30	-62	03	02	14	-11	29	17	-04	04
04	P S 2	24	-70	-01	-04	09	-02	09	08	09	-01
05	S E 2	20	-62	31	13	-16	09	26	11	03	16
06	S P M	13	-55	04	10	-06	03	21	57	08	06
07	R S P	27	-12	22	14	63	-06	03	-05	03	18
08	S C O	16	-69	09	07	36	16	-20	00	03	01
09	W A R	10	-53	-01	01	25	12	07	27	24	03
10	L P E	20	-65	02	-13	14	02	-14	-21	31	15
11	J U D	03	-27	-01	-04	21	-02	-13	72	05	14
12	A N A	23	-53	25	11	32	06	10	34	-07	02
13	V O C	23	-63	07	07	40	03	-04	19	-02	-14
14	M A R	90	-14	05	02	15	04	-01	-02	09	06
15	O L A	86	-19	11	06	19	07	05	11	07	-03
16	S S T	88	-17	12	05	22	01	04	05	02	13
17	M A T	83	-24	06	02	02	03	25	05	04	-05
18	S C I	91	-18	05	-04	11	-01	08	02	08	04
19	G T P	94	-21	09	06	14	04	10	07	09	02
20	C F U	13	-04	11	09	-04	07	06	-01	84	06

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F U	-03	-02	-02	88	-12	03	-02	01	04	11
22	D F U	07	03	06	00	06	79	09	18	11	04
23	N F U	07	-14	47	18	02	03	27	-32	26	26
24	E F U	26	-06	09	10	-02	16	16	17	04	74
25	C S U	05	-07	74	03	20	09	-08	15	-03	-13
26	M S U	16	-22	60	-04	03	-02	-03	-01	16	12
27	D S U	-01	-25	-12	14	10	66	-18	-38	07	08
28	N S U	40	-21	05	13	-03	26	40	04	09	-34
29	E S U	17	-39	-04	09	06	10	50	-16	01	13
30	C M U	24	-09	07	-03	68	14	24	11	-07	-07
31	M M U	25	-18	-05	-01	53	19	13	11	34	-17
32	D M U	05	-06	47	-05	08	59	15	-12	-02	05
33	N M U - I	30	-30	11	52	52	09	14	07	-11	-08
34	N M U - II	05	-12	03	88	20	01	05	-02	06	-06
35	E M U	11	-03	00	-07	34	00	69	05	11	10

TABLE : XVIII - j

FACTOR ANALYSIS STUDY : FA-10 : Unrotated Factor Matrix - C L A S S E S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-40	-04	-11	04	09	03	-32	50	36	03	-08
02	S E 1	50	-47	16	-13	05	-09	-29	05	-07	-09	24
03	P S 1	66	-25	-05	-22	-06	-13	04	01	-13	-19	15
04	P S 2	61	-32	-07	-35	-07	04	-04	09	-11	05	-05
05	S E 2	60	-36	21	-08	07	-17	-08	05	-12	-04	04
06	S P M	54	-43	-16	-12	19	-28	16	04	07	00	09
07	R S P	48	06	-13	36	-01	33	-01	-21	05	20	-14
08	S C O	59	-39	-26	-04	-13	19	-26	-09	-02	06	-13
09	W A R	54	-34	-13	00	03	-13	11	12	13	30	-18
10	L P E	51	-25	-01	-24	-14	36	-27	-02	-01	13	08
11	J U D	34	-31	-36	06	-02	-15	42	-06	35	14	-10
12	A N A	66	-32	-25	13	-03	00	10	-15	-01	-14	14
13	V O C	64	-32	-35	00	-09	05	-09	-09	05	-07	-07
14	M A R	75	51	-13	-15	06	08	-09	-04	05	04	-01
15	O L A	81	40	-11	-07	03	07	00	-06	00	-01	07
16	S S T	80	46	-14	-07	08	07	-05	-03	04	02	-03
17	M A T	80	36	10	-11	02	-11	-07	06	03	-13	06
18	S C I	78	48	-03	-17	02	-01	-09	-02	08	-01	-02
19	G T P	86	45	-05	-11	08	01	-04	-02	02	-03	01
20	C F C	35	14	25	-20	08	-11	40	27	-12	40	24

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Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F C	17	-07	02	18	76	14	05	10	-19	06	20
22	D F C	29	02	-20	47	-10	-10	-24	54	-17	13	-02
23	N F C	24	-19	41	22	-13	24	07	-16	45	15	39
24	E F C	42	-15	39	27	03	11	-02	-17	10	-21	-17
25	C S C	43	-11	41	20	-18	-10	07	-19	-40	00	-12
26	M S C	32	-09	14	-03	-08	62	26	27	-01	-02	12
27	D S C	66	-08	37	13	-02	-07	01	10	22	-11	-17
28	N S C	50	07	39	10	03	-10	-06	21	27	-24	-04
29	E S C	62	-01	35	-07	-06	-23	00	11	03	11	-32
30	C M C	38	06	-21	45	-36	-04	-01	21	-18	-18	29
31	M M C	42	00	-07	10	-02	29	47	23	-21	-20	-32
32	D M C	43	12	12	32	-09	-14	-20	-18	-15	49	-01
33	N M C	28	-14	-08	27	71	03	-11	-14	-01	-08	-08
34	E M C	34	24	-26	28	-11	-34	18	-11	15	-11	20

FACTOR ANALYSIS STUDY - FA-10 : Rotated Factor Matrix - C L A S S E S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-25	11	01	16	00	-08	-14	-03	73	-08
02	S E 1	04	-70	29	05	12	-08	-10	03	-07	-04
03	P S 1	31	-61	13	06	00	10	17	05	-24	-20
04	P S 2	26	-71	02	-02	-04	16	07	17	-06	-02
05	S E 2	14	-60	33	08	15	-04	02	19	-21	-06
06	S P M	11	-58	11	01	22	-04	45	19	-05	-14
07	R S P	31	-09	09	15	17	21	18	-14	-12	54
08	S C O	19	-71	00	11	01	11	12	-18	-02	29
09	W A R	12	-50	11	11	09	03	39	30	06	18
10	L P E	23	-63	07	-07	-08	23	-14	-04	05	30
11	J U D	02	-24	03	-01	00	09	77	10	06	09
12	A N A	24	-52	12	15	14	14	42	-17	-24	07
13	V O C	27	-63	03	15	05	10	33	-20	-05	13
14	M A R	92	-13	03	03	04	07	05	06	-02	12
15	O L A	85	-19	09	09	06	13	12	04	-14	11
16	S S T	89	-16	07	09	09	10	10	05	-06	12
17	M A T	80	-23	30	13	02	01	02	12	-12	-09
18	S C I	91	-17	14	04	-01	02	05	09	-04	05
19	G T P	93	-20	15	09	09	08	08	10	-11	05
20	C F C	25	-03	06	-03	01	18	08	75	-11	00

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F C	05	-03	00	01	82	13	-05	16	01	01
22	D F C	11	-14	02	81	10	02	-02	12	16	12
23	N F C	-05	-05	60	-17	-07	15	14	02	02	44
24	E F C	11	-16	59	01	15	11	01	-13	-25	13
25	C S C	08	-22	31	17	00	01	-11	16	-65	12
26	M S C	11	-16	17	00	-01	75	-07	10	04	13
27	D S C	33	-28	65	11	05	08	11	14	-09	03
28	N S C	33	-12	66	13	05	03	00	08	05	-13
29	E S C	35	-32	43	09	-05	-07	03	38	-16	02
30	C M C	20	-09	09	68	-12	15	15	-16	-18	03
31	M M C	21	-09	05	21	11	63	20	09	-23	-13
32	D M C	26	-11	10	26	05	-26	-02	24	-27	56
33	N M C	12	-14	11	-01	80	-09	10	-13	-01	07
34	E M C	36	12	08	28	-05	-16	49	-09	-15	-04

TABLE : XVIII - k

FACTOR ANALYSIS STUDY : FA-11 : Unrotated Factor Matrix - R E L A T I O N S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-42	-03	-23	-15	03	06	53	13	26	-21	-04
02	S E 1	50	-42	-14	-41	-06	18	-10	-11	12	04	-06
03	P S 1	68	-23	-12	-07	-05	01	-16	-02	01	-21	13
04	P S 2	60	-27	-39	-03	-11	20	-08	-07	-05	12	09
05	S E 2	61	-34	08	-22	-10	12	-18	01	15	-12	-14
06	S P M	56	-42	-09	16	-31	15	06	-15	12	-21	-05
07	R S P	48	08	10	14	16	-21	17	22	00	47	-32
08	S C O	59	-36	-34	04	28	-08	10	13	03	19	-04
09	W A R	55	-35	-09	16	-07	-04	21	11	01	03	12
10	L P E	50	-20	-39	-22	17	-08	-03	27	04	21	29
11	J U D	35	-32	-09	50	-18	-07	18	03	-24	-25	-16
12	A N A	68	-32	-03	19	11	-11	-10	00	05	-08	-09
13	V O C	65	-31	-22	21	23	01	02	-03	07	04	-05
14	M A R	72	56	-20	07	06	09	-01	04	11	-02	-04
15	O L A	80	43	-09	09	04	02	-03	-05	06	-02	-04
16	S S T	78	49	-13	09	05	03	07	02	03	-02	-06
17	M A T	79	39	-03	-13	-04	05	-03	-04	-05	-15	06
18	S C I	76	52	-15	01	-04	01	01	04	03	-06	05
19	G T P	85	49	-09	04	-01	06	00	00	03	-05	00
20	C F R	58	02	17	00	-43	-12	04	-08	11	06	06

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F R	14	-10	49	17	06	55	17	21	11	13	33
22	D F R	32	-11	15	-12	66	-05	06	-27	-32	-21	15
23	N F R	58	-04	23	11	-21	-21	14	-05	00	-04	29
24	E F R	23	-08	01	-42	-15	-21	54	-03	-23	12	00
25	C S R	29	-14	33	-12	15	-27	-12	-22	54	04	-31
26	M S R	21	+10	28	-06	18	-22	-17	68	11	-36	07
27	D S R	58	04	31	-33	-20	09	12	13	-11	09	-15
28	N S R	45	03	13	-45	-01	00	00	-06	17	04	23
29	E S R	42	-09	08	-28	01	30	-26	10	-47	05	-29
30	C M R	57	-07	23	14	08	-32	-07	-31	-08	16	26
31	M M R	58	-07	17	08	-19	-05	01	18	-11	05	-14
32	D M R	47	00	20	-14	26	07	37	-14	-03	-30	-20
33	N M R	44	-09	33	29	20	46	09	-08	11	17	-02
34	E M R	63	-07	28	04	-09	-25	-13	04	-21	-01	06

FACTOR ANALYSIS STUDY : FA-11 : Rotated Factor Matrix – R E L A T I O N S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-19	05	-58	06	-05	-02	32	05	41	-10
02	S E 1	05	-62	00	-42	03	01	18	-06	-31	-01
03	P S 1	31	-61	22	-13	11	-06	03	14	-18	-08
04	P S 2	26	-68	05	-02	-05	-01	04	-20	-27	12
05	S E 2	16	-57	19	-34	02	10	07	17	-25	-11
06	S P M	13	-73	26	00	-06	15	10	-05	04	-26
07	R S P	29	-06	32	-01	00	19	15	06	05	62
08	S C O	16	-65	05	-02	18	00	07	04	-02	50
09	W A R	13	-57	23	10	01	14	21	08	06	17
10	L P E	22	-49	-10	-14	00	-16	12	14	-19	48
11	J U D	03	-50	33	52	06	06	06	08	13	-10
12	A N A	23	-61	36	-05	19	06	-08	16	00	14
13	V O C	25	-67	16	00	22	10	-08	00	04	28
14	M A R	93	-13	05	-04	02	03	-03	00	-02	12
15	O L A	86	-20	23	-06	09	05	-01	00	-04	09
16	S S T	90	-17	16	01	09	06	07	01	-01	13
17	M A T	81	-19	20	-11	13	00	15	06	-20	-07
18	S C I	91	-14	15	-02	01	-02	08	05	-07	07
19	G T P	93	-19	21	-05	07	06	06	02	-09	06
20	C F R	34	-25	50	-17	-23	07	25	-02	00	-09

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F R	-01	-01	01	-02	-04	83	03	11	-09	-01
22	D F R	08	-11	08	-06	86	04	03	04	-14	08
23	N F R	29	-25	53	-04	02	10	25	10	09	-02
24	E F R	03	-07	08	-03	10	-11	78	-08	-05	13
25	C S R	03	-13	32	-66	13	07	-07	11	28	05
26	M S R	05	-07	08	-07	04	04	-04	91	-04	07
27	D S R	32	-11	28	-22	-04	23	46	15	-34	01
28	N S R	28	-14	09	-49	07	03	27	06	-17	01
29	E S R	16	-18	12	01	14	11	08	05	-74	01
30	C M R	21	-19	64	-15	28	01	02	-12	02	18
31	M M R	28	-27	42	04	-08	16	17	19	-16	09
32	D M R	31	-19	05	-10	51	23	34	11	07	-13
33	N M R	21	-23	17	-06	16	71	-12	-11	-03	08
34	E M R	26	-22	62	-03	13	01	12	21	-20	07

TABLE : XVIII -1

FACTOR ANALYSIS STUDY : FA-12 : Unrotated Factor Matrix - S Y S T E M S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-39	-06	-03	03	-19	46	-06	29	-05	46	-26
02	S E 1	51	-45	-09	-28	-24	-13	-09	05	-01	04	-12
03	P S 1	65	-25	-18	-02	-07	-07	15	01	-22	-07	05
04	P S 2	62	-31	-17	-06	-09	-01	03	-08	-27	-16	01
05	S E 2	62	-35	09	-20	-20	-26	03	-01	01	12	06
06	S P M	56	-44	00	17	01	-01	37	12	-08	04	-01
07	R S P	46	09	-02	30	20	06	-39	-10	25	14	25
08	S C O	59	-38	-29	10	04	19	-28	-06	-06	-07	02
09	W A R	54	-35	-06	15	20	-01	11	-09	-11	20	-06
10	L P E	52	-23	-22	-16	05	25	-31	-20	-20	-16	09
11	J U D	32	-31	-23	34	25	07	43	11	15	00	-09
12	A N A	67	-30	-12	18	08	-09	03	08	21	-02	-06
13	V O C	65	-31	-26	22	-03	00	-11	02	13	-01	03
14	M A R	75	53	-14	05	-09	09	03	06	-02	-10	-00
15	O L A	81	42	-08	10	-05	02	06	-00	01	-06	-01
16	S S T	79	47	-12	13	-04	08	01	03	-05	-03	-06
17	M A T	79	38	-01	-10	-09	-03	14	-05	-08	06	-05
18	S C I	77	50	-13	-03	-04	08	11	-02	-08	01	-00
19	G T P	86	47	-06	05	-07	04	08	-01	-05	-04	-03
20	C F S	31	13	56	-01	25	14	23	04	-03	-08	19

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F S	08	-10	53	58	-32	-09	-09	-04	-20	-09	-01
22	D F S	31	02	20	-04	55	-01	-17	-09	-24	09	-30
23	N F S	31	-21	55	-06	07	47	10	-17	04	-06	-06
24	E F S	41	-16	14	-03	50	20	02	04	-07	14	18
25	C S S	63	-15	23	-17	-11	-32	11	-10	19	16	13
26	M S S	28	-18	10	-31	-25	51	-11	12	-06	-22	14
27	D S S	55	05	05	-14	-21	03	-15	15	-09	38	-31
28	N S S	52	04	27	-34	04	-14	07	-05	-01	-02	-25
29	E S S	47	-12	31	-43	-13	-05	-05	09	33	-20	-02
30	C M S	44	08	10	-04	36	-40	-39	04	-05	-04	-12
31	M M S	21	-01	10	02	16	-10	-12	86	-08	-18	13
32	D M S	46	10	10	-10	-10	-01	-04	01	-00	48	52
33	N M S	29	-09	43	56	-40	-07	-19	-01	-05	-05	-05
34	E M S	52	01	02	11·	04	21	-08	-01	61	-04	-21

FACTOR ANALYSIS STUDY : FA-12 : Rotated Factor Matrix - S Y S T E M S

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-28	13	-33	-04	04	01	31	10	-01	63
02	S E 1	03	-31	58	00	-10	42	00	07	01	12
03	P S 1	34	-52	30	04	-02	33	-05	04	-14	-02
04	P S 2	27	-44	28	07	-00	50	-07	-02	-13	-08
05	S E 2	13	-35	68	11	-01	20	-09	-00	-00	12
06	S P M	13	-73	25	12	18	11	05	10	-05	03
07	R S P	28	-13	-04	16	-03	11	-38	-06	55	13
08	S C O	16	-44	07	05	-08	62	-18	-00	24	06
09	W A R	12	-62	15	04	11	16	-25	-09	04	14
10	LP E	21	-18	10	-07	04	72	-21	-10	07	-01
11	J U D	07	-75	-10	-08	10	-08	09	06	17	-10
12	A N A	23	-59	28	08	-01	17	-12	10	33	-04
13	V O C	25	-54	19	12	-15	35	-08	04	34	03
14	M A R	91	-07	08	03	02	12	-03	08	14	01
15	O L A	86	-18	16	09	05	09	-10	03	17	-01
16	S S T	89	-15	06	08	03	11	-11	05	16	05
17	M A T	81	-15	32	00	11	06	-10	-05	-00	10
18	S C I	91	-12	13	-04	07	09	-08	-02	05	07
19	G T P	93	-16	19	07	08	10	-10	01	11	03
20	C F S	22	-04	12	12	65	-16	-16	10	-02	-06

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Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F S	-03	-06	-03	88	13	-05	-02	01	-06	-02
22	D F S	11	-08	01	-02	37	05	-66	02	-04	04
23	N F S	-00	-08	14	17	75	22	01	-14	14	05
24	E F S	10	-34	01	-16	42	12	-39	07	10	14
25	C S S	24	-27	71	11	09	-05	-14	-10	12	07
26	M S S	09	08	15	-01	35	59	27	15	04	09
27	D S S	37	-08	35	08	00	17	-10	08	03	50
28	N S S	31	-04	53	-04	26	06	-19	01	-05	-03
29	E S S	14	07	68	-03	27	19	04	17	25	-11
30	C M S	22	-02	25	04	-09	06	-69	19	12	-10
31	M M S	10	-09	05	03	04	01	-12	92	01	02
32	D M S	32	-10	31	04	05	-02	-14	-07	07	50
33	N M S	11	-10	10	86	05	05	-00	03	14	06
34	E M S	29	-18	19	00	17	08	05	00	72	-02

TABLE : XVIII - m

FACTOR ANALYSIS STUDY : FA-13 : Unrotated Factor Matrix - TRANSFORMATION

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-39	-07	-04	24	-22	17	41	-16	-11	-24	05
02	S E 1	48	-44	-13	12	-24	-10	-31	-08	-08	09	04
03	P S 1	67	-26	-11	04	08	09	-12	-12	13	24	02
04	P S 2	62	-30	-22	03	-12	18	-13	07	12	-05	-00
05	S E 2	59	-36	05	04	-04	03	-26	-11	-22	11	-07
06	S P M	56	-45	-16	12	28	14	-03	08	-08	10	15
07	R S P	49	10	10	-21	-08	-25	43	-04	01	-03	-13
08	S C O	62	-36	-13	-16	-23	-35	12	04	14	-14	02
09	W A R	54	-36	-13	-03	12	04	11	-03	-07	-29	05
10	L P E	54	-22	-01	-16	-35	30	-14	-02	13	-19	-23
11	J U D	34	-31	-32	-21	39	-00	30	-00	-04	04	06
12	A N A	68	-31	-07	-12	06	-24	01	04	-00	04	10
13	V O C	66	-30	-20	-14	-10	-14	04	13	07	-12	-04
14	M A R	75	53	-15	08	-05	00	-02	-02	02	-09	-00
15	O L A	81	42	-14	05	04	-05	-07	03	-01	-02	-06
16	S S T	80	47	-11	08	01	-07	03	-06	-00	-09	03
17	M A T	78	38	-03	09	01	08	-13	-04	-04	05	12
18	S C I	77	51	-13	06	03	11	-03	-07	-02	-01	03
19	G T P	86	47	-10	09	05	01	-05	-02	-03	-03	03
20	C F T	29	-05	04	-29	53	14	09	-27	04	16	-43

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F T	16	-16	22	65	25	-39	-06	05	-03	-07	-17
22	D F T	33	-04	23	-06	48	12	05	40	-04	-35	-07
23	N F T	39	-06	43	20	07	49	26	-02	08	-11	07
24	E F T	33	-06	21	12	08	14	28	-24	57	10	39
25	C S T	48	-04	18	-19	-23	-34	08	-29	01	-07	-05
26	M S T	38	-08	55	-09	08	15	-04	-18	-37	-01	07
27	D S T	30	-04	37	03	00	09	-19	26	37	41	-24
28	N S T	33	01	44	-19	-29	12	-07	02	05	-27	-26
29	E S T	36	-04	-02	35	-19	12	13	52	-24	02	06
30	C M T	32	01	31	-28	-12	-32	22	44	10	19	12
31	M M T	18	-02	43	-30	03	01	-37	-05	-22	-02	44
32	D M T	47	09	12	-09	-13	-17	41	-03	-33	32	-00
33	N M T	28	-24	31	49	06	-43	-00	-22	11	-14	-06
34	E M T	19	-16	-02	29	-28	34	27	-07	-20	35	-14

FACTOR ANALYSIS STUDY : FA-13 : Rotated Factor Matrix - T R A S F O R M A T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	-28	20	-15	00	-18	25	-05	-02	18	-54
02	S E 1	08	-70	13	20	-07	13	-04	-21	-13	10
03	P S 1	30	-59	05	09	27	14	-01	-09	15	26
04	P S 2	26	-71	-01	-05	-02	10	-06	08	12	09
05	S E 2	18	-59	35	17	13	20	-02	-06	-09	12
06	S P M	11	-61	00	16	37	23	-07	24	00	12
07	R S P	30	-14	05	02	11	-00	63	02	16	-10
08	S C O	15	-72	01	-05	-04	-02	32	04	17	-05
09	W A R	16	-59	07	10	20	-00	09	23	09	-23
10	L P E	22	-61	25	-24	-21	03	-01	02	25	-01
11	J U D	03	-39	-20	-07	57	01	19	18	-01	-11
12	A N A	22	-62	07	16	21	-03	33	05	-03	12
13	V O C	24	-70	-03	01	03	-06	29	11	00	01
14	M A R	92	-15	02	01	-04	01	12	05	06	02
15	O L A	87	-24	04	06	06	01	15	08	-01	11
16	S S T	89	-18	05	09	04	00	19	05	07	00
17	M A T	82	-22	17	05	06	11	04	03	06	16
18	S C I	91	-15	08	-03	08	08	07	05	09	05
19	G T P	94	-21	10	07	07	06	12	08	05	09
20	C F T	14	-07	19	-08	70	-05	02	05	13	06

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F T	03	-05	-04	84	-02	06	-04	17	-03	07
22	D F T	13	-11	18	08	19	-15	05	75	07	05
23	N F T	15	-09	31	07	04	34	-00	35	59	-01
24	E F T	13	-13	-09	13	15	02	11	-07	74	17
25	C S T	24	-29	29	15	-01	-13	45	-28	11	-08
26	M S T	11	-08	72	12	19	21	12	11	09	-00
27	D S T	12	-07	11	04	-07	09	07	06	26	72
28	N S T	13	-17	50	-09	-30	-08	18	12	26	01
29	E S T	21	-23	-08	11	-28	49	12	41	-14	08
30	C M T	04	-08	07	-02	-10	-02	68	20	-01	38
31	M M T	03	-05	65	-03	03	-13	02	02	-12	18
32	D M T	29	-07	14	04	18	40	60	-09	-08	-00
33	N M T	03	-20	10	79	-05	-05	11	-07	20	-03
34	E M T	03	-16	-02	-03	-00	72	02	-13	14	-03

TABLE : XVIII - n

FACTOR ANALYSIS STUDY : FA-14 : Unrotated Factor Matrix - I M P L I C A T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
01	AGE	-40	-03	-03	-04	07	-13	37	32	-14	-24	-40
02	S E 1	48	-46	-14	27	00	20	17	11	07	10	-13
03	P S 1	67	-26	-08	04	-12	05	10	-07	-05	21	-09
04	P S 2	62	-34	-23	05	-12	01	02	07	-05	14	00
05	S E 2	60	-35	09	17	-10	20	08	07	-02	10	-08
06	S P M	55	-47	-04	-02	-22	-06	19	-20	04	-12	-05
07	R S P	49	07	21	-30	16	-05	-34	27	00	-15	02
08	S C O	59	-38	-26	-10	21	06	-03	24	03	-01	10
09	W A R	54	-35	-03	-08	-05	-14	06	06	-01	-20	21
10	L P E	51	-24	-28	11	18	00	-11	27	01	24	-03
11	J U D	33	-37	-10	-26	-02	-45	00	-34	08	-31	11
12	A N A	67	-33	-03	-18	16	05	-01	-22	-02	-09	-04
13	V O C	65	-34	-20	-25	11	05	02	01	01	-10	04
14	M A R	75	50	-21	-06	-04	-04	03	01	17	00	-06
15	O L A	81	39	-12	-05	-09	00	00	-08	08	-05	-03
16	S S T	81	44	-13	-07	00	-04	02	-01	07	-07	-06
17	M A T	80	37	-02	11	-13	00	12	-04	-02	02	-05
18	S C I	78	48	-16	-02	-07	-08	05	-02	-01	01	-08
19	G T P	87	44	-10	-01	-09	-02	03	-05	06	-03	-06
20	C F I	08	06	23	30	-05	-12	43	22	36	-31	49

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10	11
21	M F I	12	-09	45	-09	-12	55	09	-24	20	-20	-18
22	D F I	16	13	27	-33	48	-10	30	-30	06	32	03
23	N F I	54	02	38	17	-15	-10	04	-03	-20	06	10
24	E F I	35	-25	34	02	-06	-46	-08	08	-30	06	-03
25	C S I	25	-12	40	-16	06	-31	-25	07	22	-07	-38
26	M S I	17	-05	-11	55	34	-03	-22	-24	15	-22	-27
27	D S I	47	13	44	08	15	-04	16	15	-27	-08	-12
28	N S I	55	15	15	26	-07	-03	16	04	-41	00	00
29	E S I	14	-13	29	09	-32	-28	-05	-04	42	53	01
30	C M I	35	-03	19	00	60	20	20	-17	-07	15	14
31	M M I	23	01	05	63	20	-11	-37	-23	-05	-08	15
32	D M I	34	07	16	08	35	-02	-04	42	36	02	00
33	N M I	51	-14	39	-06	-25	41	-24	09	06	-12	02
34	E M I	45	12	07	-23	-01	19	-34	08	-22	03	32

FACTOR ANALYSIS STUDY : FA-14 : Rotated Factor Matrix – I M P L I C A T I O N

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
01	AGE	–30	14	05	–28	–06	–24	38	–04	–05	–32
02	S E 1	04	–75	05	15	01	10	13	–05	–06	06
03	P S 1	31	–62	20	01	08	08	–11	–07	12	17
04	P S 2	25	–69	12	02	–07	–03	–10	–01	11	09
05	S E 2	15	–64	24	09	02	26	02	02	–02	11
06	S P M	14	–58	14	01	–01	20	09	–15	46	10
07	R S P	28	–12	19	–06	02	11	–20	64	14	–09
08	S C O	16	–72	–03	01	06	–06	–08	30	12	–13
09	W A R	16	–50	18	–01	–04	05	08	15	38	–05
10	L P E	19	–63	01	13	02	–23	–13	23	–11	05
11	J U D	06	–21	02	04	03	–07	–01	04	82	02
12	A N A	24.	–54	08	09	26	20	–16	12	40	–07
13	V O C	25	–62	–01	–06	12	08	–12	18	34	–14
14	M A R	92	–16	–03	01	04	–02	00	15	03	04
15	O L A	87	–22	09	05	04	10	–06	11	12	02
16	S S T	89	–19	09	04	08	03	–02	18	09	–03
17	M A T	82	–25	25	08	05	09	03	00	00	05
18	S C I	91	–17	15	02	05	–04	–05	06	05	00
19	G T P	93	–22	15	06	05	08	–03	11	08	03
20	C F I	11	–01	08	06	–05	11	76	09	–01	04

...... 2 ——

Sr. No.	Test Code	1	2	3	4	5	6	7	8	9	10
21	M F I	-02	-01	-02	-02	15	82	08	-03	02	00
22	D F I	12	08	04	-14	82	-03	-03	06	11	14
23	N F I	30	-18	59	09	06	18	02	03	06	17
24	E F I	-03	-18	64	01	01	-14	-05	19	30	18
25	C S I	01	01	19	04	05	10	03	51	32	27
26	M S I	07	-10	-08	78	05	-02	10	04	06	-09
27	D S I	27	-10	59	02	24	14	13	21	-05	-12
28	N S I	41	-22	60	10	04	03	02	-11	-09	-10
29	E S I	01	-09	09	-04	-01	02	07	06	02	86
30	C M I	10	-23	10	17	70	11	-02	09	-09	-14
31	M M I	09	-03	21	79	-04	-03	-07	03	00	05
32	D M I	19	-20	-02	11	16	-02	27	60	-19	08
33	N M I	18	-30	23	-01	-14	67	-13	28	-01	08
34	E M I	32	-15	19	-06	-01	20	-44	27	-03	-11

TABLE - XIX

CODING SYSTEM USED FOR SI MODEL TESTS AND OTHER VARIABLES

VARIABLE NO.	VARIABLE CODE IN Numerals	and Letters	VARIABLE DESCRIPTION (Code Name)
V1		AGE	Age
V2	631	SE-1	Number Series
V3	633	PS-1	Problem Solving 1
V4	635	PS-2	Problem Solving 2
V5	639	SE-2	Series
V6	600	SPM	Raven's Standard Progressive Matrices
V7	700	RSP	Reading Speed
V8	630	SCO	Sentence Construction
V9	632	WAR	Word Arrangement
V10	634	LPE	Letter Perception
V11	636	JUD	Judgement
V12	637	ANA	Analogy
V13	638	VOC	Vocabulary
V14	711	MAR	School Marks - Marathi
V15	712	OLA	School Marks - Hindi, English and Sanskrit
V16	713	SST	School Marks - Social Studies
V17	714	MAT	School Marks - Mathematics
V18	715	SCI	School Marks - Science
V19	716	GTP	School Marks - Grand Total in Percentage
V20	111	CFU	Cognition of Figural Units
V21	112	CFC	Cognition of Figural Classes
V22	113	CFR	Cognition of Figural Relations
V23	114	CFS	Cognition of Figural Systems
V24	115	CFT	Cognition of Figural Transformations
V25	116	CFI	Cognition of Figural Implications
V26	211	MFU	Memory of Figural Units
V27	212	MFC	Memory of Figural Classes
V28	213	MFR	Memory of Figural Relations
V29	214	MFS	Memory of Figural Systems
V30	215	MFT	Memory of Figural Transformations
V31	216	MFI	Memory of Figural Implications

[V2 to V5 and V8 to V13 are tests adapted from Kuhlmann Anderson's Scale.]

Contd./..

VARIABLE NO.	VARIABLE CODE IN Numerals and Letters		VARIABLE DESCRIPTION (Code Name)
V32	311	DFU	Divergent Production of Figural Units
V33	312	DFC	Divergent Production of Figural Classes
V34	313	DFR	Divergent Production of Figural Relations
V35	314	DFS	Divergent Production of Figural Systems
V36	315	DFT	Divergent Production of Figural Transformations
V37	316	DFI	Divergent Production of Figural Implications
V38	411	NFU	Convergent Production of Figural Units
V39	412	NFC	Convergent Production of Figural Classes
V40	413	NFR	Convergent Production of Figural Relations
V41	414	NFS	Convergent Production of Figural Systems
V42	415	NFT	Convergent Production of Figural Transformations
V43	416	NFI	Convergent Production of Figural Implications
V44	511	EFU	Evaluation of Figural Units
V45	512	EFC	Evaluation of Figural Classes
V46	513	EFR	Evaluation of Figural Relations
V47	514	EFS	Evaluation of Figural Systems.
V48	515	EFT	Evaluation of Figural Transformations
V49	516	EFI	Evaluation of Figural Implications
V50	121	CSU	Cognition of Symbolic Units
V51	122	CSC	Cognition of Symbolic Classes
V52	123	CSR	Cognition of Symbolic Relations
V53	124	CSS	Cognition of Symbolic Systems
V54	125	CST	Cognition of Symbolic Transformations
V55	126	CSI	Cognition of Symbolic Implications
V56	221	MSU	Memory of Symbolic Units
V57	222	MSC	Memory of Symbolic Classes
V58	223	MSR	Memory of Symbolic Relations
V59	224	MSS	Memory of Symbolic Systems
V60	225	MST	Memory of Symbolic Transformations
V61	226	MSI	Memory of Symbolic Implications

Contd./ ....

VARIABLE NO.	VARIABLE CODE IN Numerals and Letters		VARIABLE DESCRIPTION (Code Name)
V62	321	DSU	Divergent Production of Symbolic Units
V63	322	DSC	Divergent Production of Symbolic Classes
V64	323	DSR	Divergent Production of Symbolic Relations
V65	324	DSS	Divergent Production of Symbolic Systems
V66	325	DST	Divergent Production of Symbolic Transformations
V67	326	DSI	Divergent Production of Symbolic Implications
V68	421	NSU	Convergent Production of Symbolic Units
V69	422	NSC	Convergent Production of Symbolic Classes
V70	423	NSR	Convergent Production of Symbolic Relations
V71	424	NSS	Convergent Production of Symbolic Systems
V72	425	NST	Convergent Production of Symbolic Transformations
V73	426	NSI	Convergent Production of Symbolic Implications
V74	521	ESU	Evaluation of Symbolic Units
V75	522	ESC	Evaluation of Symbolic Classes
V76	523	ESR	Evaluation of Symbolic Relations
V77	524	ESS	Evaluation of Symbolic Systems
V78	525	EST	Evaluation of Symbolic Transformations
V79	526	ESI	Evaluation of Symbolic Implications
V80	131	CMU	Cognition of Semantic Units
V81	132	CMC	Cognition of Semantic Classes
V82	133	CMR	Cognition of Semantic Relations
V83	134	CMS	Cognition of Semantic Systems
V84	135	CMT	Cognition of Semantic Transformations
V85	136	CMI	Cognition of Semantic Implications
V86	231	MMU	Memory of Semantic Units
V87	232	MMC	Memory of Semantic Classes
V88	233	MMR	Memory of Semantic Relations
V89	234	MMS	Memory of Semantic Systems
V90	235	MMT	Memory of Semantic Transformations
V91	236	MMI	Memory of Semantic Implications

Contd./.....

VARIABLE NO.	VARIABLE CODE IN Numerals and Letters		VARIABLE DESCRIPTION (Code Name)
V92	331	DMU	Divergent Production of Semantic Units
V93	332	DMC	Divergent Production of Semantic Classes
V94	333	DMR	Divergent Production of Semantic Relations
V95	334	DMS	Divergent Production of Semantic Systems
V96	335	DMT	Divergent Production of Semantic Transformations
V97	336	DMI	Divergent Production of Semantic Implications
V98	431	NMU(I)	Convergent Production of Semantic Units
V99	432	NMC	Convergent Production of Semantic Classes
V100	433	NMR	Convergent Production of Semantic Relations
V101	434	NMS	Convergent Production of Semantic Systems
V102	435	NMT	Convergent Production of Semantic Transformations
V103	436	NMI	Convergent Production of Semantic Implications
V104	437	NMU(II)	Convergent Production of Semantic Units
V105	531	EMU	Evaluation of Semantic Units
V106	532	EMC	Evaluation of Semantic Classes
V107	533	EMR	Evaluation of Semantic Relations
V108	534	EMS	Evaluation of Semantic Systems
V109	535	EMT	Evaluation of Semantic Transformations
V110	536	EMI	Evaluation of Semantic Implications

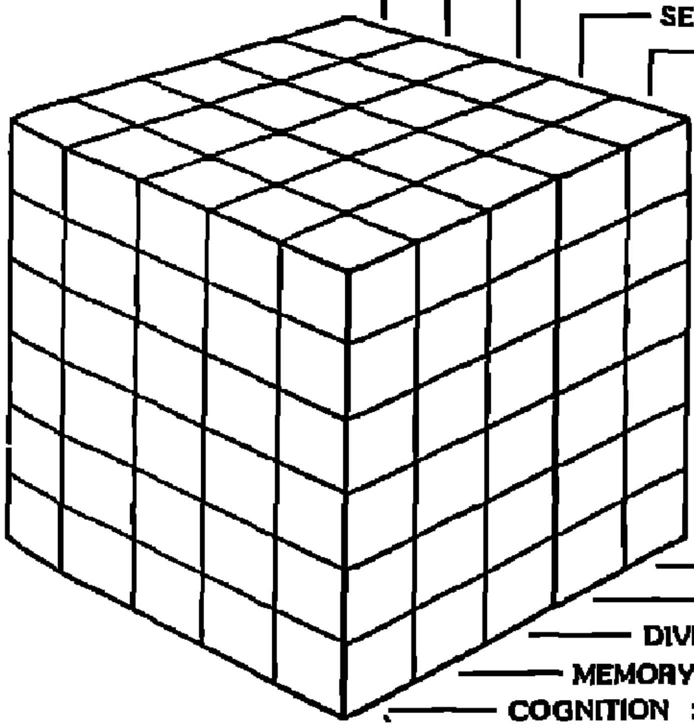
APPENDIX I

FIGURE - I

STRUCTURE -OF -INTELLECT (SI)

By Dr. J. P. Guilford

The Model and Definitions of its Categories



Note : The category of visual content has been denoted by letter 'F' in the present project. Auditory and Behavioural contents have not been used. Hence the trigram symbols for the factors from these categories are not reproduced here. The numeral code is specific to the present project only.

Trigram Symbols : A few for example

111 : CFU - Cognition of Figural Units

313 : DFR - Divergent Production of Figural Relations

414 : NFS - Convergent Production of Figural Systems

516 : EFI - Evaluation of Figural Implications

122 : CSC - Cognition of Symbolic Classes

324 : DSS - Divergent Production of Symbolic Systems

425 : NST - Convergent Production of Symbolic Transformation

521 : ESU - Evaluation of Symbolic Units

133 : CMR - Cognition of Semantic Relations

335 : DMT - Divergent Production of Semantic Transformations

532 : EMC - Evaluation of Semantic Classes

336 : DMI - Divergent Production of Semantic Implications

DEFINITIONS AND DESCRIPTIONS OF SI CATEGORIES

Kinds of Operations or Mental Processes

Cognition. Discovering, knowing, or comprehending items of information, such as seeing that the red patch of color is in the form of a cow, or knowing the meaning of the word *love*. More technically, cognition is a process of structuring items of information by the brain.

Memory. Committing cognized items of information to storage in the brain with persistence at least beyond the moments of activation by direct stimulation, such as memorizing the license number of an automobile or a recipe for cooking. This operation does not include retrieving items of information from storage. The latter activity involves one or the other of two different SOI operations to be mentioned next.

Divergent Production. Producing a number of alternative items of information from memory storage, either verbatim or in modified form, to satisfy a given need, such as naming objects that are both hard and edible, or suggesting a number of different titles for a given short story. Thus it is a matter of retrieving from memory storage members of a specified class. It is optimally revealed by individual differences in test scores when two class specifications are given (Christensen & Guilford, 1963).

Convergent Production. Retrieving from memory storage a particular, fully specified item of information, such as thinking of a special word to fit a given place in a crossword puzzle or drawing the correct conclusion from given facts, a la Sherlock Holmes. It may seem strange that events of retrieving items of information from memory storage should involve two different psychological functions, but factor analysis consistently shows this to be the case. One function involves a broad search, as in reviving members of a class while the other entails a focused search for a particular class member.

Evaluation. Deciding whether or not, or how well, a certain item of information satisfies certain logical requirements, such as deciding whether an incomplete circle will pass through a given point if it is completed, or deciding which of four given objects is both round and hard. This operation does not apply to aesthetic judgements or choices (Hoffman, Guilford, Hoepfner, & Doherty, 1968). It is not known whether it applies to moral judgements, but it should theoretically apply to judgements of the actuality of behavioural events and to legal decisions.

Kinds of Informational Substances - Content Categories

Visual. Information arising directly from stimulation of the retina or indirectly in the form of images of the same character.

Auditory. Information arising from the direct stimulation of the receptors in the cochlea of the inner ear or indirectly in the form of images of the same character.

Symbolic. Items of information that ordinarily stand for other kinds of items, such as digits or letters, and their combinations; a basis for mathematics and languages.

Semantic. Meanings, usually but not always attached to word symbols.

Behavioral. Items of information about the mental states and about the behavior of individuals, as transmitted by their expressive actions - their "body language". Abilities involving behavioral information provide a "social intelligence".

Kinds of Informational Forms - Product Categories

Unit. An entity like an object, having its own unique combination of properties or attributes, such as a blue triangular patch, the sound of a musical chord, a printed word, the meaning of crime, or a person's intention to hit someone.

Class. A conception behind a set of similar units (or other kinds of products, even classes of classes), as given by a set of rectangles, or high-pitched tones, or words ending in - ing, or set of occupations, or of doubting Thomases.

Relation. An observed connection between two items, as one boy taller than another, two tones an octave apart, two names in alphabetical order, Alice married to Jim, or Maggie angey with Henry.

System. Three or more items interrelated in a recognizable whole, as the arrangement of objects seen on your desk, a melody or a rhythm, a telephone number, a plan for a sequence of actions, or three persons interacting in a cartoon.

Transformation. Any change in an item of information, including substitutions, as in a visually perceived movement of an object, a variation in a melody, a correction of a misspelling, a pun, or a revised impression of a person's mood.

Implication. An item of information suggested by a given item of information, as adding a line to a doodle, thunder expected following lightning, seeing 4 X 5 and thinking 20, hearing the word light and thinking of heavy, or thinking what your frowning friend is likely to say or do next.

Reproduced from :- Guilford, J. P, (1985). The Structure-of-Intellect Model.

In B. B. Wolman (Ed.), Handbook of Intelligence,

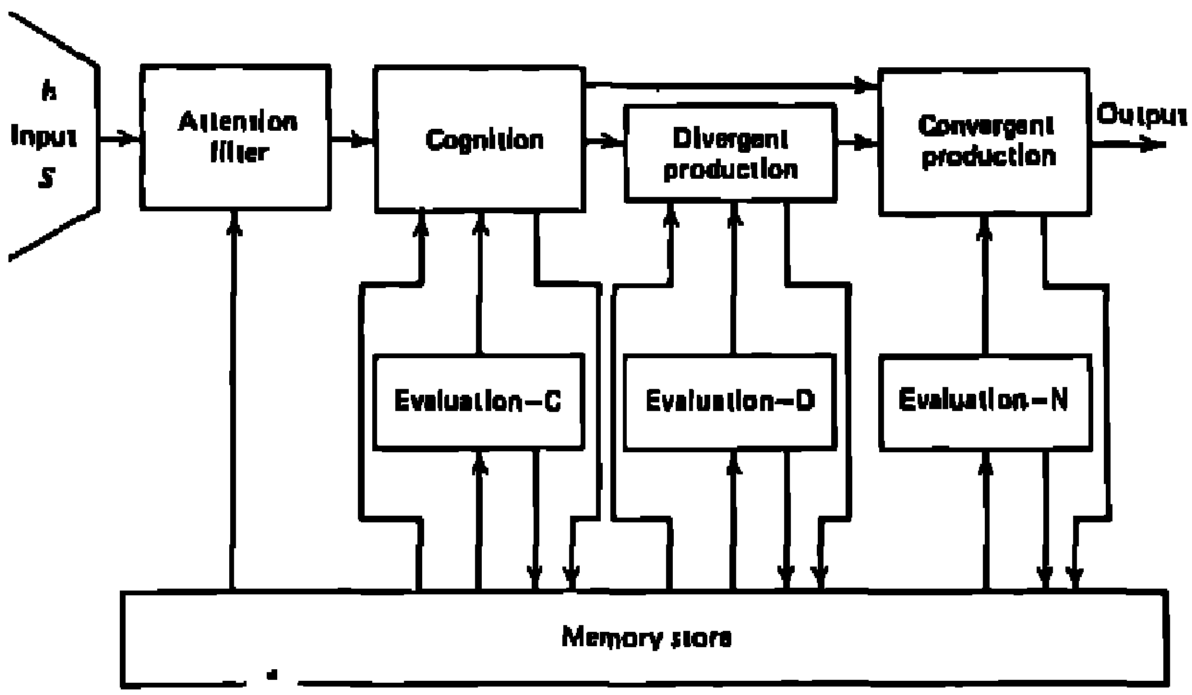
N. Y., Wiley.

FIGURE -: II

THE STRUCTURE-OF-INTELLECT PROBLEM- SOVLING MODEL,

SHOWING THE INTERRELATIONSHIPS OF

THE SOI OPERATIONS IN A TIME SERIES



Reproduced from :- Guilford, J. P. (1985). The Structure-of-Intellect Model. In B. B. Wolman (Ed.), Handbook of Intelligence, N. Y., Wiley.

APPENDIX II

LETTERS BY DR. J. P GUILFORD

509 North Rexford Drive
Beverly Hills, CA 90210

January 7, 1987

Dr. Mrs. Usha Khire
Institute of Psychology
510 Sadashivpeth
Pune-41103
India

Dear Professor·

Your letter and report came just yesterday. It must have come on a slow boat. Nevertheless, the contents made my day, as the saying goes. Your government is certainly giving your organization and education ingeneral wonderful support. And it seems to be paying off in a big way. I know of no place that is making such a broad study of the implications of SOI for education. And it seems to be paying off.

As to the affiliation of your organization with ISIE, there is no formal arrangement of this kind. It just so happens that the Learned Society in Japan and the SOI Institute in the USA have people who started ISIE and are active in it They would like to keep in touch with you.

You should not be too disturbed in finding low test-retest reliabilities for SOI tests. Giving the same test twice would result in restriction in range in the retest. Low-scorers in the first testing can gain more in the second testing. Testing with alternate forms would avoid this circumstance.

You mention research on reading. I might pass on to you some information that you probably do not have. A student named Feldman did a doctoral dissertation on reading in the first grade in relation to SOI abilities. The abilities he found significantly related to learning to read at that stage were CVU, CAU, MVU, MAU, EVU, and EAU. Note the relation to auditory abilities. The involvement of evaluation abilities is undoubtedly a sensitivity to errors. For this reason I should expect also involvement of transformation abilities, as the child corrects his errors.

Your group might be interested in a chapter I wrote on SOI for Wolman's Handbook of intelligence (Wiley). I have just finished writing a paper on "Some afterthoughts on the structure of intellect." If it is published I will send an offprint. Wolman's book was published by Wiley. You might get a copy of Feldman's dissertation from the Doheny Library at the University of Southern California, Los Angeles, CA 90087

PTO

You should find the behavioral abilities related to leadership and to management. This is worth looking into

A use of SOI tests that you did not mention and that the SOI Institute finds quite useful is in the treatment of the child who has learning difficulties. SOI tests often show where such a child is weak He is then given exercises to build up the weak ability or abilities Dr. Meeker cites cases in which suicides may have been prevented by this procedure.

Then, of course there is the Japanese practice of giving any children exercises in SOI abilities, resulting in marked increases in IQ.

With best wishes for continued successes in the applications of SOI.

Sincerely,

JPG

J. P. Guilford

P. S. Your building looks very impressive.

509 North Rexford Drive
Beverly Hills, CA 90210

De. Mrs Usha Khire
Institute of Psychology
510 Sadashiv Peth 411030

Pune, India

Dear Dr. Khire·

In afterthoughts I realized that I did not give you as much information as I could have in my letter of yesterday.

For one thing, you mentioned that tests of different SOI abilities have shown some correlations. I made a study of possible intercorrelations among the SOI factors and reported the results in an article in the journal called Multivariate Behavioral Research, for 1981. Sorry, I have no reprint to send you.

Some general findings were that of all the operation categories, that of divergent production was most independent and memory was next. The other three showed more relationships. Some of this is no doubt due to inadequate experimental controls in test construction Both convergent production and evaluation require more precise cognition. In developing memory tests we tried to control the cognition variance by giving items that

Some evaluation is also involved in convergent-production tests
were very familiar to all examinees. In two cases we failed. The factor loadings for parallel cognition abilities were significant. In general, since pairs of abilities share one or two SOI categories there would be expectation of some relationship. All we can do is to inject as much experimental control as we can.

The other subject that I can give you some advance infom-ation on is my enlargement of the SOI model. Someone in Holland has demonstrated a set of abilities for long-term retention. Those abilities were found highly correl-ated with the memory abilities, naturally, also perhaps due to lack of experimental control, but I now refer to the memory category as "memory recording." Even this category includes not only recording but also some short-term memory.

I now also regard the divergent-production category as a memory-retrievel affair, a broad search of the memory store, although it may be more than that, as in extensions or use of recalled information. Convergent production can be regarded as a focused search, aimed at [illegible] conclusion might be that SOI is becoming a "structure of the mind."

PTO

Another suggestion that I am making is that a column for kinesthetic abilities can be added to the SOI model, like the visual and auditory ones This might be of importance in athletics and the dance. An added dimension might be needed for part of the body

And this suggests a psychomotor model, to which parts of the body would also apply, but SOI operation and product categories may also apply

From all this you will see that your group has enormous future work to do. You seem to be equipped for it.

I'm sorry about the messed-up typing, but you may be able to solve the puzzles it creates.

Sincerely,

J P. Guilford

P O. Box 1288
Beverly Hills, California
90213

January 26, 1981

Dr. Usha Khire510 Sadachiv Peth
Pune 411030
India

I have just received from Professor Kuo, of Ball State University, the copy of your letter to him of 18/12/1980., with his request that I write a reply.

I was delighted to hear that you are proceeding to develop tests for the structure-of-intellect abilities. In this direction lies a rich, dependable source of informatkon about people.

I will react to your numbered questions in turn. First, you are quite right that orthodox methods of item analysis do not apply to divergent-production tests. You are right in suggesting that the best information is from the intercorrelations of item scores. The only refinement that I could suggest would be to factoranalyze the items, providing there is a sufficient number, and use the first-factor loadings as information of validity.

Although in our Aptitudes Project we usually made item analyses of preliminary forms of tests, my coworkers never called to my attention the difficulties you mention with memoty tests. What you are doing seems sensible.

I see nothing wrong with your resorting to dichotomizing results from items and correlating with the G index of agreement. It is a good indicator of congruence of informaton.

I wonder whether, in your test construction, you have had access to my book (with Hpepfner) "The analysis of intelligence"? Appendix B of that book gives sample items of all the tests that we used. Statistical information is given in the body of the book.

With all good wishes for success in your venture,

Sincerely,

J P Guilford

J. P. Guilford

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August 6, 1980

Dear Dr. Khire:

Letters like yours of July 22 are indeed a joy to read. Sometimes I have the impression that you and others in India, as well as some educators in Japan, have a deeper understanding of and appreciation for my SI model. The chief center of activity for exploiting the model in education in this country is the SOI (structure-of-intellect) Institute, which is operated by Dr. Mary Meeker and her husband Dr. Robert Meeker. They have produced numerous tests and numerous exercises for building up SI abilities in children. The address of the Institute, in case you wish to communicate with it, is 343 Richmond Street, El Segundo, California, 90245.

On reading your prospectus for research on test development through once my impression is that it is very well planned and quite extensive. The only thing I see that might be done differently is in correlating test items, you might use instead of the phi coefficient, my G index of agreement. Its formula is $r_g = \frac{(a + d) - (b + c)}{N}$

where a and d are the like-signed frequencies and b and c are the unlike-signed frequencies in a four-fold contingency table. Phi gives biased coefficients unless the means of the item variables are equal (both equal .5). The G index automatically equates means. Moreabout G could be found in my book (with Fruchter) on statistics, the 1978 or 1973 edition.

Since I have been retired from the University for several years, I no longer have associates or assistants from which source I could recommend an aid for you. My former students are now scattered and established in various places.

I wish you continued success with your SI venture.

Sincerely,

J. P. Guilford

J. P. Guilford

P.O. Box 1288
Beverly Hills, California
90213

October 28, 1077

Dr. Usha Khire
Department of Psychological Research and Testing
Dnyana Prabodhinee
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Dear Dr. Khire:

I hope you can pardon my delay in responding to your letter. I have been away from home for a time, in Japan and in Hawaii, and have just returned.

The reading of your letter and of your research and development plans was most delightful; most rewarding. Your development and standardizing of tests for the structure-of-intellect abilities is, of course, the natural next step in preparation for the full assessment of intelligence of individuals. We must go well beyond tests of the IQ type. I am sure your results will pay off handsomely. I know of no other sources that are undertaking a solution to the problem on such a vast scale.

I venture no evaluative comments on your research plans, other than to say that you seem to understand the structure of intellect well and you are carrying out the implied steps in a systematic and thorough manner. I can appreciate the enormity of your undertaking. I hope you can find the computer services that would facilitate your efforts a great deal.

You mentioned the lack of models for test items for SI abilities NFU, NFS, and NSU. Perhaps you have already invented the kinds of items needed in these areas, but if you haven't, I can suggest a source in which I have suggested the kinds of items that should work for these abilities. This is in my new book: WAY BEYOND THE IQ. This book is published by the Creative Education Foundation, whose address is: Chase Hall SUCB, 1300 Elmwood Avenue, Buffalo, NY 14222. The price is about 7 $$.

You might be interested to know that in my recent visit to Japan, to participate in the annual convention of the Learned Society of Intelligence Education, I learned how that Society has been promoting the application of the SI model in education. Starting even before kindergarten, they give children exercises in each of most of the SI abilities, also give tests to determine how the children are developing. It was quite illuminating as well as rewarding.

With all good wishes for your continued successes,

Sincerely,

Nationa' ' ' te of Education